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ABSTRACT

This instructional task/competency package is designed to be used in combination with the "Industrial Arts Guide to CBE Implementation" in order to implement competency-based education (CBE) in the graphic communications course in Virginia. This task/competency package contains a suggested task sequence list, content outline, and task/competency information for the specific course, "Graphic Communications." The package is organized in two parts. Part 1 contains a description of the industrial arts program and a course description, an instructional task/competency list, and a content outline for graphic communications. The task/competency list includes the minimum task competencies identified for inclusion in the course, listed in a suggested order of instruction. The content outline corresponds with the task/competency list in content and sequencing. However, within the outline, tasks are identified in topical form and related tasks are grouped into broader topics of instruction. Part 2 contains information for instruction in each of the tasks/ competencies identified in Part 2. The following information is provided for each task/competency: appropriate program and course designation; performance and enabling objectives; a criterion-referenced measure; and suggested activities and aids for instruction. Appendixes list resources and references, audiovisual materials, and tools and equipment. (KC)

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Industrial Arts Instructional Tasks/Competencies for Graphic Communications

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Richmond, Virginia 23216

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GUIDE APPLICATION

This publication has been prepared for use in developing instructional materials and in implementing competency-based education for the following program and course:

Program	Course
Graphic Communications (CIP Code: 21.0106)	Graphic Communications (VA Code: 8458)

Because of the nature of this course, no specific career, occupational, or vocational applications of graphic communications competencies are identified. Graphic Communications, like other Industrial Arts courses, is intended to provide for students an orientation to a wide range of occupations and to assist them in assessing their talents and interests and in clarifying their career goals.

Additional information concerning the application and use of this publication in program planning and development should be addressed to:

Industrial Arts Education Service
Vocational and Adult Education
Department of Education
P.O. Box 6Q
Richmond, Virginia 23216

INDUSTRIAL ARTS

INSTRUCTIONAL TASKS/COMPETENCIES

for

GRAPHIC COMMUNICATIONS

Developed by

Virginia Vocational Curriculum Center
Department of Vocational and Community Education
Henrico County Public Schools
Glen Allen, Virginia 23060

and

Arlington Public Schools
Arlington, Virginia

In Cooperation With

Commonwealth of Virginia
Department of Education
Vocational and Adult Education
Richmond, Virginia 23216

This publication was developed by Arlington Public Schools for the Virginia Department of Education, Divisions of Vocational and Adult Education under the provisions of the Vocational Education Amendments of 1976, (Public Law 94-482) and Competency-Based Education Contract #VA80 C-132-3-AD-001A, Subpart 3, Section 32, Exemplary.

1985

FOREWORD

Competency-based education (CBE) provides a means for allowing students and teachers to assess learning in relation to competencies and specific objectives set forth in advance.

Although nonoccupational in focus, this publication adheres to the CBE practice of recording competencies developed by students. This practice permits the smooth transition to an occupational track at a later time, if the students wishes.

Competency-based education is being implemented in Virginia to prepare students to enter the work force or to effect a smooth transition between secondary and postsecondary programs when both levels of education are required for career training. In addition, CBE is increasingly effective in retraining workers who have been displaced because of changing technology.

This publication will assist teachers and administrators in developing instructional materials that meet the needs of students and industry and comply with the Virginia CBE standards for vocational and adult education.

S. John Davis
Superintendent of Public Instruction

Melvin H. Garner
Administrative Director
Vocational and Adult Education

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The development and completion of this instructional task/competencies package required a vast expenditure of time, effort, and teamwork by the project staff and participants. The researchers and writers, Forrest La Velle, Harold Symes, and Edwina K. Lake, deserve recognition for their dedication, time, and expertise.

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Mildred Andra Witten, Project Director

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Virginia Department of Education

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INTRODUCTION

This instructional task/competency package is designed to be used in combination with the Industrial Arts Guide to CBE Implementation in order to implement competency-based education in the course Graphic Communications. The implementation guide contains information that pertains to all courses within the industrial arts area; the sections of that publication are titled Career Decision-Making Information, Student Organization (AIASA), Classroom Management Systems, and Recording Systems. This task/competency package contains suggested task sequence list, content outline, and task/competency information for the specific course, Graphic Communications. Detailed instructions for combined use of these two publications are contained within the Industrial Arts Guide to CBE Implementation.

Using the Task/Competency Package

Part 1 contains a description of the Industrial Arts program and a course description, instructional task/competency list, and content outline for Graphic Communications. The task/competency list includes the minimum task/competencies identified for inclusion in the course, listed in a suggested order of instruction. The content outline corresponds with the task/competency list in content and sequencing. However, within the outline, tasks are identified in topical form and related tasks are grouped into broader topics of instruction.

Part 2 contains information for instruction in each of the task/competencies identified in Part 1. The following information is provided for each task/competency: appropriate program and course designation, performance and enabling objectives, a criterion-referenced measure, and suggested activities and aids for instruction.

It is suggested that the Part 1 task sequence list and course content outline be reviewed initially so that any additional tasks may be added, any extraneous tasks may be deleted, and any desired changes in sequencing of instruction be made. Once the sequencing is confirmed, lesson planning and implementation may proceed through referral to the Part 2 task/competency sheet noted beside each instructional topic within the outline.

PART 1

PROGRAMS AND COURSES

The course description, content outline, and suggested task sequence contained in this section were developed using the validated task inventory presented in Part 2 of this guide. The program and courses have been approved by the Virginia Department of Education.

The course outline has been cross-referenced with the task/competency information sheets to assist the teacher in identifying instructional objectives, materials, criterion standards, and reference materials.

OVERVIEW OF INDUSTRIAL ARTS EDUCATION PROGRAMS[1]

The Industrial Arts Education offerings are provided to assist the student in developing an understanding about industry and technology and in discovering and developing individual potential. There are two types of industrial arts programs designed for the secondary school level:

1. Orientation and Exploration--designed for grades 7 through 9, this program assists students in making informed and meaningful occupational and educational choices. The program, designed for the middle or junior high school, provides the student with a broad base of try-out experiences and insights into career opportunities. It gives a basis for personal assessment of work interests and aptitudes. Instruction at this level places emphasis upon the following:

   a. Using the tools, equipment, materials, and products associated with industry and technology

   b. Role playing in simulated enterprises associated with a number of the career clusters

   c. Studying and analyzing the materials, products, processes, problems, uses, developments, and contributions of many of the elements making up career clusters

   d. Studying the organization of numerous industries or businesses while experiencing typical aspects of many

   e. Researching, planning, designing, constructing, evaluating, and generalizing in association with problems and projects related to various career clusters.

2. Technical Adaptability--designed for grades 9 through 12, this program prepares students for vocational and technical career decisions. The senior high school program provides students with competencies which will result in an occupational readiness and responsible citizenship useful for the future craftsperson, technician, engineer, or consumer. It provides a foundation for career preparation either at the secondary or postsecondary level. The senior high program complements the middle or junor high school offering by completing a sequence of opportunities to learn about the industrial and technological aspects of society. Instruction in the program places emphasis upon the following:

   a. Preparing for enrollment in advanced technical or occupational programs

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[1]Division of Program Services and Division of Administrative Services and Continuing Education, Vocational Education Student Planning Guide (Richmond: Virginia Department of Education).

b. Understanding industry and technology and their place in society and the free enterprise system

c. Understanding industrial processes and the practical application of scientific principles

d. Developing basic skills in the proper use of common industrial tools, materials, and processes

e. Solving problems creatively, using the materials, processes, and products of industry.

Activities of the American Industrial Arts Student Association (AIASA) are included as a part of the instructional program to promote leadership qualities, high standards of work performance, scholarship, and safety. Teachers integrate AIASA experiences within their instruction by providing students with the following:

a. An involvement with the community's industrial and technical resources

b. Activities in parliamentary procedures and democratic decision-making

c. Recognition for exemplary performance, work skills, and safety procedures.

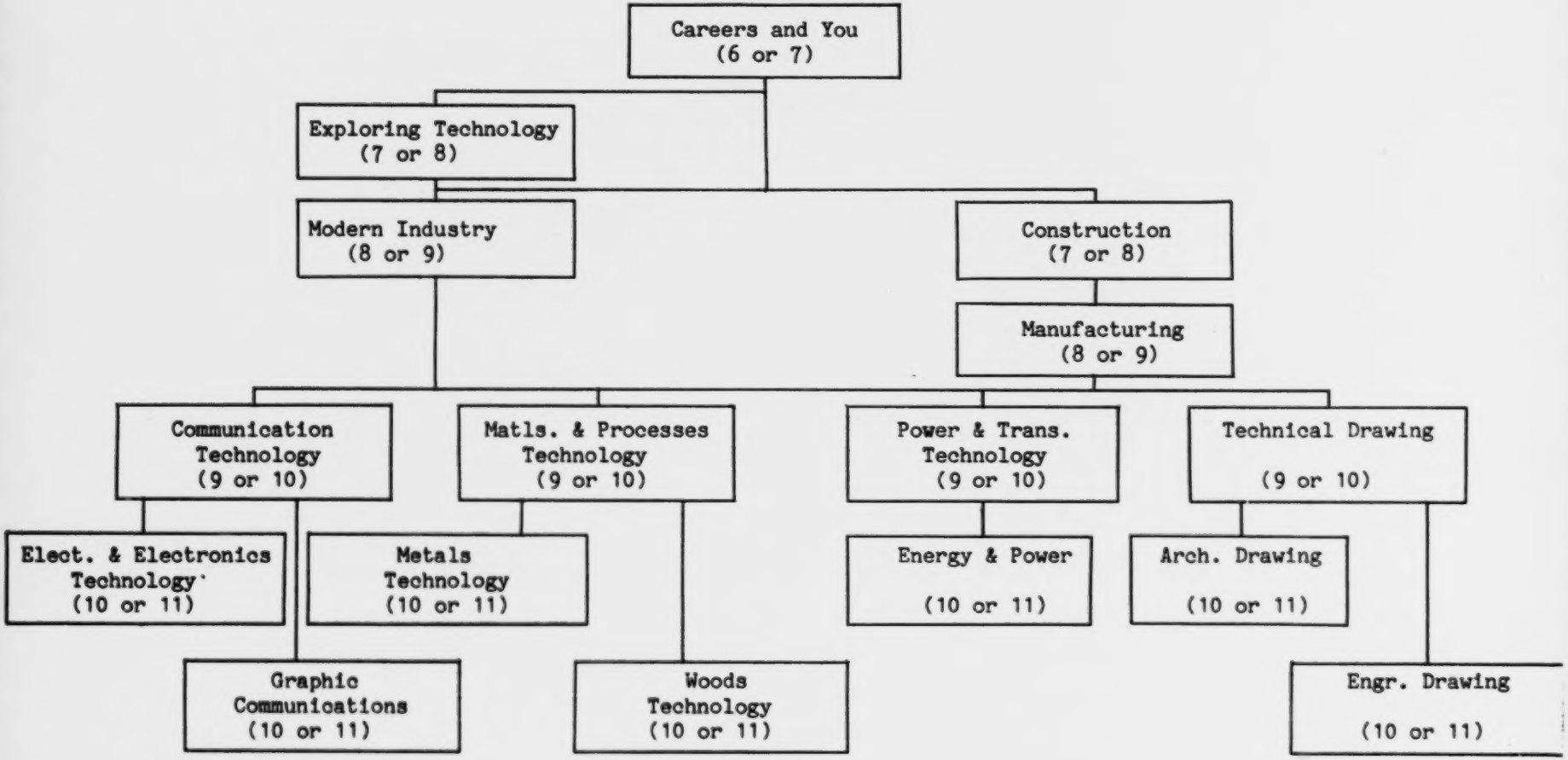
THE INDUSTRIAL ARTS CURRICULUM

LEVEL	GOAL	PROGRAM
Elementary School	Learning Reinforcement	Industrial Arts activities integrated within the elementary curriculum
Middle or Junior High School	Orientation and Exploration	Exploring Technology Modern Industry Construction Manufacturing
High School	Technical Adaptability	<u>Phase I</u> Basic Technical Drawing Communication Technology Materials and Processes Technology Power and Transporation Technology <u>Phase II</u> Architectural Drawing Electricity and Electronics Technology Energy and Power Engineering Drawing Graphic Communications Metals Technology Woods Technology

INDUSTRIAL ARTS EDUCATION PROGRAMS

PROGRAMS	AVAILABLE COURSES	CODE	SUGGESTED GRADE	NO. WEEKS
Occupational Orientation (Pre-exploratory)	A World of Choice: Careers and You	8475	6 or 7	36 or 18
Orientation and Exploration	Exploring Technology (18 or 36 weeks)	8464 8461	7, 8, or 9 7, 8, or 9	18 36
	Modern Industry (18 or 36 weeks)	8463 8462	7, 8, or 9 7, 8, or 9	18 36
	Construction (18 or 36 weeks)	8432 8431	7, 8, or 9 7, 8, or 9	18 36
	Manufacturing (18 or 36 weeks)	8426 8425	7, 8, or 9 7, 8, or 9	18 36
Technical Adaptability (Phase One)	Communication Technology	8415	9 or 10	36
	Materials and Processes Technology	8433	9 or 10	36
	Power and Transportation Technology	8445	9 or 10	36
	Basic Technical Drawing	8435	9 or 10	36
Technical Adaptability (Phase Two)	Architectural Drawing	8347	10 - 12	36
	Electricity & Electronics Technology	8416	10 - 12	36
	Energy and Power	8448	10 - 12	36
	Engineering Drawing	8436	10 - 12	36
	Graphic Communications	8458	10 - 12	36
	Metals Technology	8439	10 - 12	36
	Woods Technology	8449	10 - 12	36
Alternative Vocational Centers	Industrial Occupational Exploration (ICE)	8472	9 or 10	36

SUGGESTED SEQUENCES OF OFFERINGS*
INDUSTRIAL ARTS EDUCATION



*This chart is recommended for student guidance and is used to suggest best sequence of courses.

THE INDUSTRIAL ARTS COURSE IN GRAPHIC COMMUNICATIONS

(8458)

DESCRIPTION:	The Graphic Communications course deals with printed images in such forms as newspapers, books, printed t-shirts, signs, photographs, wallpaper, or stationery. Students use a variety of graphic equipment and processes to make visual projects with different materials. Students design, plan, and produce products similar to those of the graphic communications industry. Computer typesetters, cameras, printing presses, and bindery machines are among the many equipment items students use.
PREREQUISITE:	None
SUGGESTED GRADE LEVEL:	10, 11, or 12
CIP CODE:	21.016

TASKS/COMPETENCIES SEQUENCE

1.1 Report on the history, purposes, and influences of graphic communications technology
1.2 Identify principles of message analysis and development
1.3 Describe the principles of design
1.4 Describe the methods of image generation
1.5 Classify typefaces
1.6 Define layout and pasteup terms, tools, and techniques
1.7 Use metric, standard, and printer's measurements
1.8 Define key terms and concepts related to photography
1.9 Explain the types of printing and duplicating processes
1.10 Follow lab safety rules
1.11 Explain the economics of a printing business
1.12 Compare types of paper and ink
1.13 Identify binding and finishing processes
1.14 Describe careers and occupations in graphic communications
2.1 Participate in AIASA classroom activities
2.2 Identify community (industrial) and technical resources
2.3 Participate in school or community improvement activities
2.4 Participate in a group enterprise project
2.5 Participate in competitive events
3.1 Prepare thumbnail, rough, and comprehensive layouts
3.2 Apply dry transfer lettering and border tape
3.3 Select and paste up clip art

3.4 Generate strike-on images, using a typewriter
3.5 Generage images, using the stripprinter
3.6 Mark percentage of enlargement or reduction required on photographs
3.7 Crop and size photographs
3.8 Apply register marks and mark colors
3.9 Cut outlines of artwork in masking film
3.10 Proof camera-ready copy for photo-reproduction quality
4.1 Describe the parts of a process camera
4.2 Make exposure tests with process camera
4.3 Produce a line negative
4.4 Produce a halftone negative
4.5 Produce line enlargements and reductions
4.6 Mix film processing chemicals
4.7 Develop film by gray scale method
4.8 Develop film by time-temperature method
4.9 Strip or mask negatives
4.10 Strip halftones
4.11 Opaque photostat imperfections
5.1 Describe the types and parts of cameras
5.2 Calculate exposure settings for various lighting situations
5.3 Identify the types of continuous tone films and the characteristics of each
5.4 Process a roll of black and white film
5.5 Identify the types of photographic positive materials and the use of each
5.6 Produce black and white contact prints and enlargements
6.1 Identify terms and concepts related to screen printing
6.2 Stretch silk on frame
6.3 Prepare paper stencils
6.4 Prepare tusche stencils
6.5 Prepare hand-cut film stencils
6.6 Prepare photographic indirect stencils
6.7 Prepare photographic direct stencils
6.8 Produce screen process prints
6.9 Produce multicolor screen process prints
7.1 Describe the characteristics of metal, plastic, paper, and electrostatic plates
7.2 Check flats for imperfections, blocked images, and impositions
7.3 Expose plates
7.4 Prepare plate surface for press
7.5 Analyze plates for press readiness
7.6 Mount plate on press
7.7 Clean and file plates
8.1 Identify the main parts and controls of an offset printing press
8.2 Select paper stock
8.3 Ink press
8.4 Measure, mix, and add fountain solution
8.5 Clean blanket
8.6 Adjust feed table and feed controls
8.7 Maintain paper register
8.8 Adjust delivery unit on offset press
8.9 Run solid color job
8.10 Run two-color ink job in register
8.11 Run screen tint copy job to specifications
8.12 Clean plate

8.13 Identify press problems
8.14 Make a rubber stamp or carved linoleum block for hand relief printing
8.15 Prepare a drypoint engraving for gravure printing
9.1 Operate padding press to make pads
9.2 Operate paper cutter
9.3 Operate folding machine
10.1 Clean and maintain layout and pasteup equipment
10.2 Clean and maintain process camera and darkroom equipment
10.3 Clean and maintain press equipment
10.4 Clean and maintain binding equipment

GRAPHIC COMMUNICATIONS (8458)

CONTENT OUTLINE	TASK/COMPETENCY CODE
I. Introducing Graphic Communications Technology	
A. History, principles, and influences of graphic communications technology	P1.1
B. Principles of message analysis and development	P1.2
C. Principles of design	P1.3
D. Methods of image generation	P1.4
E. Classification of typefaces	P1.5
F. Identification of layout and pasteup terms, tools, and techniques	P1.6
G. Use of metric, standard, and printer's measurements	P1.7
H. Definition of key terms and concepts related to photography	P1.8
I. Description of types of printing and duplicating processes	P1.9
J. Identification of lab safety rules	P1.10
K. Explanation of printing business economics	P1.11
L. Identification and comparison of types of paper and ink	P1.12
M. Identification of binding and finishing processes	P1.13
N. Investigation of careers and occupations in graphic communications	P1.14
II. Integrating the Student Organization Throughout the Course	
A. Participation in AIASA classroom activities	P2.1
B. Investigation of community (industrial) and technical resources	P2.2
C. Participation in school or community improvement activities	P2.3
D. Participation in group enterprise project	P2.4
E. Participation in competitive events	P2.5
III. Generating Images and Preparing Copy	
A. Preparation of thumbnail, rough, and comprehensive layouts	P3.1
B. Application of dry transfer lettering and border tape	P3.2

CONTENT OUTLINE			TASK/COMPETENCY CODE
III.	C.	Location and pasteup of clip art	P3.3
	D.	Generation of strike-on images, using a typewriter	P3.4
	E.	Generation of images, using a strip-printer	P3.5
	F.	Identification of percentage of enlargement or reduction required on photographs	P3.6
	G.	Cropping and sizing of photographs	P3.7
	H.	Application of register marks and indication of colors	P3.8
	I.	Cutting of outlines of artwork in masking film	P3.9
	J.	Proofing of camera-ready copy for photoreproduction quality	P3.10
IV.		Producing Reproduction Photographs	
	A.	Identification of process camera parts	P4.1
	B.	Production of exposure tests with process camera	P4.2
	C.	Production of a line negative	P4.3
	D.	Production of a halftone negative	P4.4
	E.	Production of line enlargements and reductions	P4.5
	F.	Mixing of film processing chemicals	P4.6
	G.	Development of film by gray scale method	P4.7
	H.	Development of film by time and temperature	P4.8
	I.	Stripping or masking of negatives	P4.9
	J.	Stripping of halftones	P4.10
	K.	Opaquing of photostat imperfections	P4.11
V.		Producing Continuous Tone Photographs	
	A.	Identification of the types and parts of cameras	P5.1
	B.	Calculation of exposure settings for various lighting situations	P5.2
	C.	Identification of the types of continuous tone films and the characteristics of each	P5.3
	D.	Processing of a roll of black and white film	P5.4
	E.	Identification of the types of photographic positive materials and explanation of the use of each	P5.5
	F.	Production of black and white contact prints and enlargements	P5.6

CONTENT OUTLINE		TASK/COMPETENCY CODE
VI.	Performing Screen Process Printing	
A.	Identification of terms and concepts related to screen printing	P6.1
B.	Production of stretching silk on frame	P6.2
C.	Preparation of paper stencils	P6.3
D.	Preparation of tusche stencils	P6.4
E.	Preparation of hand cut film stencils	P6.5
F.	Preparation of photographic indirect stencils	P6.6
G.	Preparation of photographic direct stencils	P6.7
H.	Production of screen process prints	P6.8
I.	Production of multicolor screen process prints	P6.9
VII.	Producing and Using Offset Lithographic Plates	
A.	Description of metal, plastic, paper, and electrostatic plates	P7.1
B.	Identification of imperfections, blocked images, and impositions on plate	P7.2
C.	Exposure of plates, according to job order specifications	P7.3
D.	Preparation of plate surface for press	P7.4
E.	Analysis of plate for press readiness	P7.5
F.	Process of mounting plate on press	P7.6
G.	Process of cleaning and filling plates	P7.7
VIII.	Printing Materials, Using Various Methods	
A.	Identification of the main parts and controls of an offset printing press	P8.1
B.	Selection of paper stock according to specifications	P8.2
C.	Inking of the press	P8.3
D.	Process of measuring, mixing, and adding fountain solution	P8.4
E.	Process of cleaning blanket	P8.5
F.	Adjustment of feed table and feed controls	P8.6
G.	Maintenance of register	P8.7
H.	Adjustment of delivery unit on offset press	P8.8
I.	Process of running solid color job	P8.9
J.	Process of running two-color ink job in register	P8.10
K.	Process of running screen tint copy job to specifications	P8.11
L.	Process of cleaning plate	P8.12
M.	Troubleshooting of press problems	P8.13

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CONTENT OUTLINE			TASK/COMPETENCY CODE
VIII.	N.	Preparation of linoleum block or rubber stamp for hand relief printing	P8.14
	O.	Preparation of a drypoint engraving for gravure printing	P8.15
IX.	Binding, Finishing, and Packaging Materials		
	A.	Operation of padding press to make pads	P9.1
	B.	Operation of paper cutter	P9.2
	C.	Operation of folding machine	P9.3
X.	Cleaning and Maintaining Equipment		
	A.	Maintenance of layout and pasteup equipment	P10.1
	B.	Maintenance of process camera and darkroom equipment	P10.2
	C.	Maintenance of press equipment	P10.3
	D.	Maintenance of binding equipment	P10.4

PART 2

TASK INVENTORY

One of the major characteristics of competency-based education (CBE) is that the course content is based upon actual jobs or tasks performed by persons living and working in the technological world. In Virginia, the Department of Education has established standards for competency-based education. According to these standards, competencies must be "role-relevant" and based upon "appropriate research." This standard states:

> Role-relevant competencies that include standards are identified and stated:
>
> The competencies with standards will be identified through V-TECS, IDECC, and other appropriate research. Advisory committees should be used to review competencies and standards. Competencies in the affective domain will be included. Role-relevant competencies are occupational preparation programs for those that specifically relate to the occupation for which the student is being prepared as well as to the personal needs of the student. Role-relevant competencies are related also to orientation, exploration, or industrial arts experiences which have been identified for students.

Therefore, "role-relevant" jobs or tasks, called <u>competencies</u> in CBE, must be identified and validated before instructional materials are developed and subsequent instruction can take place.

The task list contained in this instructional guide was based on the following:

1. The Virginia Industrial Arts Education Competency Catalog for Graphic Communications
2. The review and selection of appropriate competency-based materials
3. Input from industrial arts teachers and curriculum specialists.

Based upon the information collected and reviewed from the available sources indicated, a task inventory was prepared.

The next major step involved in the development of the task inventory was validation of the task list. Validation is essential if the information collected is to be useful in operating CBE courses and programs. The validation process involved the following:

1. Review by writing-team members to determine completeness of the inventory.
2. Review and validation by state consultants to ensure the role-relevance and completeness of the inventory.
3. Review by local industrial arts teachers to determine the validity of the inventory.
4. Final review and editing by writing-team members, project directors, and state staff.

The task list included in this publication was based on current available resources and validated by teachers, advisory committee members, and persons employed in industrial arts. Regional and local tasks were included in the inventory; therefore, individual tasks may or may not be applicable for a given locality. It is essential that all instruction be based on the validated task analyses included in this resource.

TASK INVENTORY
FOR

GRAPHIC COMMUNICATIONS TECHNOLOGY

CONTENT/CONCEPT AREAS

1. INTRODUCING GRAPHIC COMMUNICATIONS TECHNOLOGY
2. INTEGRATING THE STUDENT ORGANIZATION THROUGHOUT THE COURSE
3. GENERATING IMAGES AND PREPARING COPY
4. PRODUCING REPRODUCTION PHOTOGRAPHS
5. PRODUCING CONTINUOUS TONE PHOTOGRAPHS
6. PERFORMING SCREEN PROCESS PRINTING
7. PRODUCING AND USING OFFSET LITHOGRAPHIC PLATES
8. PRINTING MATERIALS, USING VARIOUS METHODS
9. BINDING, FINISHING, AND PACKAGING MATERIALS
10. CLEANING AND MAINTAINING EQUIPMENT

CONTENT/CONCEPT

1. INTRODUCING GRAPHIC COMMUNICATIONS TECHNOLOGY

TASKS/COMPETENCIES

1.1 Report on the history, purposes, and influences of graphic communications technology

1.2 Identify principles of message analysis and development

1.3 Describe the principles of design

1.4 Describe the methods of image generation

1.5 Classify typefaces

1.6 Define layout and pasteup terms, tools, and techniques

1.7 Use metric, standard, and printer's measurements

1.8 Define key terms and concepts related to photography

1.9 Explain the types of printing and duplicating processes

1.10 Follow lab safety rules

1.11 Explain printing plant economics, job planning and cost estimating procedures, and legal considerations

1.12 Compare types of paper and ink

1.13 Identify binding and finishing processes

1.14 Describe careers and occupations in graphic communications

Application

CONTENT/CONCEPT

1. INTRODUCING GRAPHIC COMMUNICATIONS TECHNOLOGY

TASK/COMPETENCY

1.1 Report on the history, purposes, and influences of graphic communications technology

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

COURSE

Graphic Communications (8458)

1.1

PERFORMANCE OBJECTIVE

P1.1 Given the necessary resources, report on the history, purposes, and influences of graphic communications technology. The written report must be rated acceptable according to instructor-prepared guidelines.

SELECTED ENABLING OBJECTIVES

E1.1.1 Define the following terms: communication, communication systems, graphic communications, sender, receiver, message, content, form, and graphic arts technology.

E1.1.2 Trace the early history of graphic communications, including the development of papyrus and the inventions of paper, movable type, and the hand-operated printing press.

E1.1.3 Explain the following purposes of communicated messages: to inform, question, stimulate, provoke, persuade, influence, enhance knowledge, and entertain.

E1.1.4 Describe the importance of graphic communications today.

E1.1.5 Identify anticipated technological changes in the field, including the growing area of computer-generated graphics.

CRITERION-REFERENCED MEASURE

C1.1 Written report, acceptable rating according to instructor-prepared guidelines

SELECTED INSTRUCTIONAL ACTIVITIES

1. Present overview of the nature of communications, types of communication systems, and purpose of various forms of visual communications (E1.1.1, E1.1.3).

2. Give brief history of graphic communications; have students discuss the impact graphic arts technology has on their daily lives (E1.1.2, E1.1.4).

3. Discuss developing or anticipated technological changes in the graphic communications field (E1.1.5).

4. Discuss posters, charts, or exhibits which illustrate the nature, scope, influence, and history of graphic communications (E1.1.1-E1.1.5).

SELECTED TOOLS AND MATERIALS

Instructor-prepared guidelines

SELECTED AUDIOVISUAL MATERIALS

Transparencies: Historical Highlights. DCA Educational Products.
Sound Filmstrip: Overview of Graphic Communication. McKnight Publishing Company.
Transparencies: What is Graphic Arts? DCA Educational Products.

SELECTED REFERENCES

Graphic Communications, 2nd ed., Chapter 1. Richard J. Broekhuizen.
Understanding Graphic Arts, Chapter 2. Kenneth F. Hird.

Application

CONTENT/CONCEPT

1. INTRODUCING GRAPHIC COMMUNICATIONS TECHNOLOGY

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

TASK/COMPETENCY

1.2 Identify principles of message analysis and development

COURSE

Graphic Communications (8458)

1.2

PERFORMANCE OBJECTIVE

P1.2 Given textbooks, magazines, and other necessary resources, identify the principles of message analysis and development in five graphic communication messages. Each should be identified in terms of content, purpose, type of audience, location of audience, and image transfer method used to produce the message. Performance must be 90% correct according to instructor-prepared written test.

SELECTED ENABLING OBJECTIVES

E1.2.1 Explain the components of message analysis: content, purpose, type of audience, and location of audience.

E1.2.2 Describe the following process of message development: identification of need, idea, and design (layout); image assembly (pasteup); photoconversion (camera); image carrier (stripping and platemaking); image transfer (presswork); and finishing technique (product completion).

E1.2.3 Explain the following factors to consider when creating a design and planning production procedures for a graphic arts product: cost, quantity, and quality.

CRITERION-REFERENCED MEASURE

C1.2 Instructor-prepared written test, 90% accuracy

SELECTED INSTRUCTIONAL ACTIVITIES

1. Display an assortment of graphic arts products, including magazine and newspaper advertisements, posters, textbook illustrations, and container designs and labels. Demonstrate how to analyze each product message in terms of content, purpose, type of audience, and location of audience (E1.2.1).
2. Describe and explain the entire process of message development from need and idea through product completion (E1.2.2).
3. Emphasize the importance of considering cost, quantity, and quality when planning production for any proposed graphic arts project (E1.2.3).

SELECTED TOOLS AND MATERIALS

Samples of graphic arts products (magazines, advertisements, posters, illustrations, and pamphlets)
Instructor-prepared test

SELECTED AUDIOVISUAL MATERIALS

Sound Filmstrip: Overview of Graphic Communications. McKnight Publishing Company.

SELECTED REFERENCES

Graphic Arts (Graphic Communications, Senior High--Level 4). Eddie Poehls et al.
Graphic Communications, 2nd ed., Chapter 1. Richard J. Broekhuizen.
Understanding Graphic Arts, Chapter 2. Kenneth F. Hird.

Application

CONTENT/CONCEPT

1. INTRODUCING GRAPHIC COMMUNICATIONS TECHNOLOGY

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

TASK/COMPETENCY

1.3 Describe the principles of design

COURSE

Graphic Communications (8458)

1.3

PERFORMANCE OBJECTIVE

P1.3 Given five or more completed graphic arts products and the necessary resources, describe the principles of design in each. Design elements should include space arrangement, proportion, balance, contrast, rhythm, unity, harmony, action, variety, fitness, tone, emphasis, simplicity, and layout shape. Performance must be 90% correct according to instructor-prepared checklist.

SELECTED ENABLING OBJECTIVES

E1.3.1 Define the following terms: space arrangement, proportion, balance, contrast, rhythm, unity, harmony, symmetry, variety, action, fitness, tone, emphasis, element, shape, and simplicity.

E1.3.2 Distinguish between the optical center and mathematical (true) center on a page.

E1.3.3 Distinguish between modern and conventional (traditional) layout designs and formal and informal balance.

E1.3.4 Explain the aims of modern layout design: novelty, effectiveness, simplicity, and readability.

E1.3.5 List ways to achieve contrast in a layout design: color, screen tints, reverse image lettering, and variations in size and boldness of typeface.

E1.3.6 Describe various ways steps-and-repeat patterns can be used to achieve unity, contrast, balance, or emphasis in a layout design.

CRITERION-REFERENCED MEASURE

C1.3 Descriptions of design principles, 90% accurate according to instructor-prepared checklist

SELECTED INSTRUCTIONAL ACTIVITIES

1. Assign appropriate readings in text and have students define key terms and concepts related to the principles of design (E1.3.1).
2. Demonstrate how to determine the optical center of a page (E1.3.2).
3. Display advertisements, textbook illustrations, posters, album covers, or other graphic arts products; critique each in terms of the principles of design and type of layout composition (E1.3.1-E1.3.6).
4. Display sample graphic arts products to illustrate differences between modern and conventional layout designs (E1.3.3, E1.3.4).
5. Have students collect a variety of magazine advertisements and determine, based on an analysis of design elements, the effectiveness of each ad (E1.3.1-E1.3.6).

SELECTED TOOLS AND MATERIALS

Instructor-prepared checklist
Samples of graphic arts products (magazines, advertisements, posters, illustrations, and pamphlets)

SELECTED AUDIOVISUAL MATERIALS

Transparencies: Design. DCA Educational Products.
Filmstrip/Cassette: Principles of Graphic Design. Teaching Aids, Inc.

SELECTED REFERENCES

Commercial Art I and Commercial Art II: An Instructional Guide, Unit 1. Montgomery County Public Schools.
Commercial Art Techniques. Ralph S. Maurello.
Curriculum Manual for Graphic Arts. Vocational-Technical Division of the New Mexico State Department of Education.
Graphic Communications, 2nd ed., Chapter 2. Richard J. Broekhuizen.
Graphic Layout and Design. Gerald A. Silver.
Understanding Graphic Arts. Chapter 3. Kenneth F. Hird.

Application

CONTENT/CONCEPT

1. INTRODUCING GRAPHIC COMMUNICATIONS TECHNOLOGY

TASK/COMPETENCY

1.4 Describe the methods of image generation

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

COURSE

Graphic Communications (8458)

1.4

PERFORMANCE OBJECTIVE

P1.4 Given the necessary resources, describe the methods of image generation. Included should be hot composition and cold composition and examples of each. Performance must be 100% correct according to instructor-prepared guidelines.

SELECTED ENABLING OBJECTIVES

E1.4.1 Define the following terms: image generation, hot composition, cold composition, input, storage, retrieval, and output.

E1.4.2 Distinguish between hot and cold composition methods of image generation.

E1.4.3 Describe methods of hot composition: hand-set foundry and machine-set type.

E1.4.4 Describe methods of cold composition: strike-on, clip art, and preprinted type; technical illustration; linoleum block; continuous tone photography; and photocomposition.

E1.4.5 Compare image generation methods and describe the advantages and disadvantages of each classification of image generation.

E1.4.6 Differentiate among line copy, halftone copy, and continuous tone copy.

E1.4.7 Compare the input, storage, retrieval, and output systems for different image generation methods.

CRITERION-REFERENCED MEASURE

C1.4 Descriptions of image generation methods, 100% accurate according to instructor-prepared guidelines

SELECTED INSTRUCTIONAL ACTIVITIES

1. Assign appropriate readings in text and have students define and discuss key terms and concepts related to image generation (E1.4.1).
2. List and describe methods of hot composition and cold composition. Display samples of images generated by each method and discuss the advantages and disadvantages of each classification of image generation (E1.4.2-E1.4.5).
3. Display samples of line, halftone, and continuous tone copy and have students identify the distinguishing characteristics of each (E1.4.6).
4. Have students identify the differences among image generation methods in terms of input, storage, retrieval, and output systems (E1.4.7).

SELECTED TOOLS AND MATERIALS

Samples of hot and cold image generation
Samples of continous tone, halftone, and line copy
Instructor-prepared guidelines

SELECTED AUDIOVISUAL MATERIALS

Sound Filmstrip: Basic Fundamentals of Photo-Offset Lithography. McKnight Publishing Company.
Transparencies: Image Transfer. DCA Educational Products.
Sound Filmstrip: Introduction to Printing Process. McKnight Publishing Company.

SELECTED REFERENCES

Graphic Communications, 2nd ed., Chapters 3 and 4. Richard J. Broekhuizen.
Understanding Graphic Arts. Kenneth F. Hird.

Application

CONTENT/CONCEPT

1. INTRODUCING GRAPHIC COMMUNICATIONS TECHNOLOGY

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

TASK/COMPETENCY

1.5 Classify typeface

COURSE

Graphic Communications (8458)

1.5

PERFORMANCE OBJECTIVE

P1.5 Given typeface reference books, assorted magazines and newspapers, and the necessary tools and materials, classify typefaces according to divisions. The ten examples classified must receive a rating of 90% on instructor-prepared test.

SELECTED ENABLING OBJECTIVES

E1.5.1 Define the following terms: character, typeface, italic, font, type series, type family, serif, printer's point system, body type, display type, lower case, upper case, and display head.

E1.5.2 Identify the following basic type divisions and describe the characteristics of each division: Roman (Oldstyle and Modern), San Serif (Gothic), Square Serif (Block), Script and Cursive, Textletter (Blackletter), and Decorative (Occasional).

E1.5.3 Name the parts of a hand-set foundry type character: body, belly or front, nick, feet, groove, shoulder, county, fillet, stem, neck or beard, hairline, face, and serif (optional).

E1.5.4 Identify factors to consider in selecting appropriate and harmonious typestyles and sizes.

CRITERION-REFERENCED MEASURE

C1.5 Instructor-prepared written test, 90% accuracy

SELECTED INSTRUCTIONAL ACTIVITIES

1. Distribute a list of type definitions and terms and discuss the various typefaces and their characteristics (E1.5.1).
2. Display samples of basic type divisions. Demonstrate how to identify characteristics (E1.5.2).
3. Display examples and labeled diagram of hand-set foundry type. Demonstrate how to identify parts of a type character (optional) (E1.5.3).
4. Discuss factors to consider when selecting an appropriate typeface to meet client's needs and job specifications (E1.5.4).
5. Have students collect and identify at least 10 examples of different typefaces from newspapers and magazines (E1.5.2).
6. Have students compare the effects of various combinations of type styles and sizes for an existing newspaper advertisement layout (E1.5.4).
7. Have students experiment with the various styles and sizes of typefaces, using lettering cut from newspapers or magazines (E1.5.4).

SELECTED TOOLS AND MATERIALS

Letraset book
List of definitions
Scissors
Samples of graphic arts products (magazines, advertisements, posters, illustrations, and pamphlets)
Instructor-prepared test

SELECTED AUDIOVISUAL MATERIALS

Filmstrip/Cassette: Basic Commercial Arts Skills. Teaching Aids, Inc.
Filmstrip: The Liberated Letter. Letraset USA, Inc.
Transparencies: Typography. Teaching Aids, Inc.
Filmstrip/Cassette: Where Everything Printed Begins. Teaching Aids, Inc.

SELECTED REFERENCES

Graphic Communications, 2nd ed., Unit 2. Richard J. Broekhuizen.
Graphic Layout and Design, Sections 1 and 3. Gerald A. Silver
Letraset books
Understanding Graphic Arts. Kenneth F. Hird.

CONTENT/CONCEPT

1. INTRODUCING GRAPHIC COMMUNICATIONS TECHNOLOGY

TASK/COMPETENCY

1.6 Define layout and pasteup terms, tools, and techniques

Application

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

COURSE

Graphic Communications (8458)

1.6

PERFORMANCE OBJECTIVE

P1.6 Given the necessary resources and a list of layout and pasteup terms and tools, define layout and pasteup terms, tools, and techniques with 90% accuracy on instructor-prepared test.

SELECTED ENABLING OBJECTIVES

E1.6.1 Define the following terms: layout, pasteup, thumbnail sketch, rough layout, signature layout, copy scaling, cropping, register, overlay, halftone, proportion wheel, line copy, continous tone photography, display head, and flat.

E1.6.2 Identify steps in the offset printing process: design, layout, pasteup (flat), camera work, stripping, platemaking, and presswork.

E1.6.3 State purposes of thumbnail, rough, and comprehensive layouts.

E1.6.4 Identify basic tools and materials used by design artists and state uses or functions of each tool or material: drawing board, T-square, triangle, print trimmer, scissors, utility knife knife, rubber cement, masking tape, cellophane tape, steel ruler, straight edge, printer's line gauge, paper, art boards, color stock samples, ink pens, felt tip pens, colored pencils, pastel chalk, fixative, technical pens, brushes, paints, adhesive and decorative tapes, tint screen, waxer, nonreproducing pen, and solid rubylith film.

E1.6.5 Experiment with various brushes, pens, and art supplies.

E1.6.6 Explain the duties of the printing designer: planning and creating the design; writing specifications for the layout (size, kind of paper, typestyles); assisting in writing copy or planning the text; selecting most appropriate printing process for the job; and working closely with the customer to provide desired quality, price, and design.

CRITERION-REFERENCED MEASURE

C1.6 Instructor-prepared written test, 90% accuracy

SELECTED INSTRUCTIONAL ACTIVITIES

1. Display sample layout and pasteup tools, materials, and products. Describe characteristics and uses of thumbnail, rough, comprehensive, and signature layouts, and show layouts or pasteups in various stages of development (E1.6.1, E1.6.3, E1.6.4).
2. Demonstrate or explain uses of each tool or type of material (E1.6.4).
3. Discuss the duties of a printing designer; emphasize the importance of knowing about various printing options (E1.6.2, E1.6.6).
4. Have students assemble a kit of basic art tools and supplies. Plan a variety of simple exercises designed to help students learn how to manipulate tools or to use layout and pasteup materials (E1.6.4, E1.6.5).

SELECTED TOOLS AND MATERIALS

Assorted pencils
Pastel chalk
Fixative
Drawing board
T-square
Triangle
Technical pen
Speedball pen
Paper samples
Crow quill pen
Ruling pen
Layout paper
Blue nonreproducing pen/pencil
Light table
Art board
Rubber cement
Drafting/masking tape
Cellophane tape
Samples of color stock
Rubber cement eraser
Steel rulers, standard and metric
Straight edge
Printer's line gauge
Waxer
Instructor-prepared test

SELECTED AUDIOVISUAL MATERIALS

Filmstrip/Cassette: Basic Commercial Art Skills. Teaching Aids, Inc.
Filmstrip/Cassette: Black and White Copy Preparation. Bergwall Productions, Inc.

SELECTED REFERENCES

Curriculum Manual for Graphic Arts, Block III. Vocational-Technical Division of the New Mexico State Department of Education.
Graphic Layout and Design, Unit 3. Gerald A. Silver.

Application

CONTENT/CONCEPT

1. INTRODUCING GRAPHIC COMMUNICATIONS TECHNOLOGY

TASK/COMPETENCY

1.7 Use metric, standard, and printer's measurements

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

COURSE

Graphic Communications (8458)

1.7

PERFORMANCE OBJECTIVE

P1.7 Given the necessary resources and a list of terms, tools, and units of measure used in the graphic arts industry, use metric, standard, and printer's measurements with 90% accuracy according to instructor-prepared guidelines.

SELECTED ENABLING OBJECTIVES

E1.7.1 Identify standard measurements and measuring tools used in the graphic arts industry.

E1.7.2 Identify metrics measurements and measuring tools or equipment used in the graphic arts industry.

E1.7.3 Define ream and "M."

E1.7.4 Explain how paper is weighed and measured, using the American standard system and the International Organization for Standardization (IOS) system.

E1.7.5 Define the following terms related to the printer's point system: agate line, body line gauge, nonpareil, pica, point, quads and spaces, set, and typefounder.

CRITERION-REFERENCED MEASURE

C1.7 Use of metric, standard, and printer's measurements, 90% accurate according to instructor-prepared guidelines

SELECTED INSTRUCTIONAL ACTIVITIES

1. Display various measuring tools and equipment (E1.7.1, E1.7.2).

2. Explain uses of metric and standard measurements in the industry (E1.7.1, E1.7.2).

3. Explain differences between the IOS and American standard systems for weighing and measuring paper (E1.7.3, E1.7.4).

4. Explain uses of the printer's point system and demonstrate how to measure and designate type size (E1.7.5).

5. Supervise student practice in using basic measuring tools and techniques and in converting measurements from one system to another (E1.7.1-E1.7.5).

SELECTED TOOLS AND MATERIALS

Pica rule
Steel rulers, standard and metric
Printer's line gauge
Instructor-prepared guidelines

SELECTED AUDIOVISUAL MATERIALS

Filmstrip/Cassette: From Layout to Mechanical. Bergwall Productions, Inc.
Transparencies: Metrics on the Drawing Board. DCA Educational Products.

SELECTED REFERENCES

Graphic Communications, 2nd ed., Chapter 2. Richard J. Broekhuizen.
Graphic Layout and Design, Unit 7. Gerald A. Silver.
Understanding Graphic Arts, Chapter 12. Kenneth F. Hird.

CONTENT/CONCEPT

1. INTRODUCING GRAPHIC COMMUNICATIONS TECHNOLOGY

TASK/COMPETENCY

1.8 Define key terms and concepts related to photography

Application

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

COURSE

Graphic Communications (8458)

1.8

PERFORMANCE OBJECTIVE

P1.8 Given the necessary resources and a list of terms and concepts related to continuous tone and process photography and equipment, define key terms and concepts related to photography with 95% accuracy as measured on instructor-prepared written test.

SELECTED ENABLING OBJECTIVES

E1.8.1 Define the following terms: continous tone photography, exposure, film, emulsion, orthochromatic film, panchromatic film, incident light, reflected light, meter, f-stop, ASA, shutter, aperture, filter, lens, negative, positive, latent image, visible image, gray scale, continuous tone negative, line negative, halftone negative, copy camera, enlarger, transparency and print.

E1.8.2 Distinguish between continous tone photography and process photography.

E1.8.3 Identify types of cameras used in continous tone photography: box, folding, press, single lens reflex, twin lens reflex, and view.

E1.8.4 Name and explain functions of the basic parts of a 35mm single lens reflex camera: camera body, view finder, focusing ring, diaphragm ring, ASA settings, shutter speed indicator, shutter release, film advance lever, and rewind crank.

E1.8.5 Identify new technologies in photocomposition and compugraphics, and explain how these processes are replacing traditional photographic reproduction methods in the graphic arts industry.

CRITERION-REFERENCED MEASURE

C1.8 Instructor-prepared written test, 95% accuracy

SELECTED INSTRUCTIONAL ACTIVITIES

1. Present overview of key terms and concepts related to continous tone and process photography. Topics can include exposure theory, types of cameras, parts of a 35mm SLR camera, and types of film (E1.8.1, E1.8.3, E1.8.4).

2. Emphasize differences in continous tone and process photography (E1.8.2).

3. Describe uses of photographic process in the graphic arts industry. List recent advances in photocomposition and compugraphics and discuss present and anticipated future effects on printing and photographic products or processes (E1.8.5).

SELECTED TOOLS AND MATERIALS

Process camera
35mm single lens reflex camera
Black and white films, assorted types and sizes
Instructor-prepared test

SELECTED AUDIOVISUAL MATERIALS

Filmstrip: Darkroom Tools and Techniques. Instructional Associates, Inc.
Filmstrip/Cassette: The Printer's Photographer. McKnight Publishing Company.
Filmstrip/Cassette: Using the Camera. Greystone Films, Inc.

SELECTED REFERENCES

Curriculum Manual for Graphic Arts, Block VI. Vocational-Technical Division of the New Mexico State Department of Education.
Graphic Communications, 2nd ed., Chapters 4 and 10. Richard J. Broekhuizen.
Understanding Graphic Arts, Chapter 5. Kenneth F. Hird.

Application

CONTENT/CONCEPT

1. INTRODUCING GRAPHIC COMMUNICATIONS TECHNOLOGY

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

TASK/COMPETENCY

1.9 Explain the types of printing and duplicating processes

COURSE

Graphic Communications (8458)

1.9

PERFORMANCE OBJECTIVE

P1.9 Given the necessary resources and instruction, explain the types of printing and duplicating processes with 95% accuracy according to instructor-prepared guidelines.

SELECTED ENABLING OBJECTIVES

E1.9.1 Define the following terms: relief printing (letter press), screen process printing, gravure, (itaglio printing), planographic printing (lithography), continuous tone photography, ofice copying and duplicating, xerographic printer, engraved, "right reading," emulsion, prints, enlargements, "generated images," mimeograph, and spirit duplication.

E1.9.2 Identify uses and advantages and disadvantages of each major type of printing or duplicating process.

E1.9.3 Describe the offset press process (specifically for the A.B. Dick 350 or 360 and for the AM 1250).

E1.9.4 Identify the printing or duplicating method used to produce each of a variety of sample printed messages.

E1.9.5 List factors to consider in selecting an appropriate printing or duplicating process for a given graphic arts product.

E1.9.6 Describe recent advances in image transfer technology, including jet-ink printing and other electronic methods of printing.

CRITERION-REFERENCED MEASURE

C1.9 Explanations of printing and duplicating processes, 95% accurate according to instructor-prepared guidelines

SELECTED INSTRUCTIONAL ACTIVITIES

1. Assign appropriate reading in text and have students define and discuss key terms and concepts related to image transfer (E1.9.1).
2. Describe and demonstrate major image transfer processes. Include relief, screen process, gravure, planographic (lithography), xerographic, continuous tone photography, and electrostatic (E1.9.1-E1.9.3, E1.9.6).
3. Organize field trips to local printing shops (E1.9.3).
4. Display a variety of printed products and explain why the method used to transfer the image was appropriate or inappropriate (E1.9.4, E1.9.5).
5. List advantages and disadvantages of different types of image transfer and discuss factors involved in selecting an appropriate printing or duplicating method for a given graphic communication project (E1.9.2, E1.9.5).

SELECTED TOOLS AND MATERIALS

None identified
Instructor-prepared guidelines

SELECTED AUDIOVISUAL MATERIALS

Sound Filmstrip: Overview of Graphic Communications. McKnight Publishing Company.

SELECTED REFERENCES

Graphic Arts (Graphic Communications, Senior High--Level 4), Unit VI. Eddie Poehls et al.
Graphic Communications, 2nd ed., Chapter 1. Richard J. Broekhuizen.
Understanding Graphic Arts, Chapters 6-11. Kenneth F. Hird.

Application

CONTENT/CONCEPT

1. INTRODUCING GRAPHIC COMMUNICATIONS TECHNOLOGY

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

TASK/COMPETENCY

1.10 Follow lab safety rules

COURSE

Graphic Communications (8458)

1.10

PERFORMANCE OBJECTIVE

P1.10 Given an equipped printing and graphics laboratory and the necessary resources and supplies, follow lab safety rules. Designated lab tools and equipment must be used safely, and any existing or potentially unsafe lab situations must be corrected. Adherence to safety rules must be evidenced by a 100% score on instructor-prepared safety and tool use tests, and a safety pledge must be signed by the student.

SELECTED ENABLING OBJECTIVES

E1.10.1 Define the following terms: OSHA, safety, accident, hazard, combustible, and first aid.

E1.10.2 Liar rules for personal safety.

E1.10.3 List rules for general lab safety.

E1.10.4 List guidelines for safe handling of combustible materials.

E1.10.5 Identify basic hand tools and equipment used in the lab and demonstrate safe use of each tool or piece of equipment. (NOTE: Equipment may not be used by the student until this criteria is met.)

E1.10.6 List guidelines for maintaining a clean and orderly lab.

E1.10.7 Explain the purpose of a safety pledge.

E1.10.8 Explain laboratory personnel system.

CRITERION-REFERENCED MEASURE

C1.10 Safety and tool use tests, 100% accuracy; signature on safety pledge

SELECTED INSTRUCTIONAL ACTIVITIES

1. Provide students with a list of personal and lab safety rules (E1.10.1-E1.10.6).
2. Give demonstrations and administer safety tests as required before allowing students to use lab tools, equipment, and materials (E1.10.1-E1.10.6).
3. Have students sign safety pledge (E1.10.7).
4. Discuss the laboratory personnel system with students and relate this system to safety rules and regulations (E1.10.8).

SELECTED TOOLS AND MATERIALS

Classroom and darkroom facilities
Safety rules
Safety protection equipment
Instructor-prepared safety tests

SELECTED AUDIOVISUAL MATERIALS

Filmstrip/Cassette Series: Introduction to Graphic Arts Safety. Bergwall Productions, Inc.
Filmstrip/Cassette Series: Printing Shop Safety. Bergwall Productions, Inc.

SELECTED REFERENCES

Graphic Communications, 2nd ed. Richard J. Broekhuizen.
Introduction to Graphic Arts. Robert M. Swerdlow.
Photo-Offset Fundamentals, 4th ed., Chapter 20. John E. Cogoli.

Application

CONTENT/CONCEPT

1. INTRODUCING GRAPHIC COMMUNICATIONS TECHNOLOGY

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

TASK/COMPETENCY

1.11 Explain the economics of a printing business

COURSE

Graphic Communications (8458)

1.11

PERFORMANCE OBJECTIVE

P1.11 Given a list of terms and concepts associated with printing plant economics, job planning and cost estimating procedures, and legal considerations affecting the graphic communications industry, explain the economics of a printing business. A written report on these factors must be rated 90% accurate according to instructor-prepared guidelines.

SELECTED ENABLING OBJECTIVES

E1.11.1 Define the following terms: economics, labor, tooling-up, materials, capital, equipment, amortization, cost figuring, cost formulas, overhead wages, and salary.

E1.11.2 Identify types of costs involved in a printing operation: labor, materials, capital equipment, and overhead.

E1.11.3 List factors to consider in determining cost of a specific printing job: amount of copy; amount of preparation necessary; size of finished product; quantity of copies; method of printing; cost of paper and ink; cost of negatives and plates; cost of press time; cost of binding operations; cost of packing and shipping; and overhead costs.

E1.11.4 Demonstrate how to use price estimating guide or cost formulas to determine cost of a specific printing job; describe how computers may be used in cost estimations.

E1.11.5 Define the following terms: copyright, copyright infringement, ponography, counterfeiting, ethical, and the First Amendment to the Constitution.

E1.11.6 Define the printer's code of ethics and give examples of moral or ethical conflicts often experienced by printers (example: freedom of speech versus freedom of the press).

E1.11.7 Explain current copyright laws.

E1.11.8 Estimate total costs for a hypothetical printing job.

CRITERION-REFERENCED MEASURE

C1.11 Written report, 90% accurate according to instructor-prepared guidelines

SELECTED INSTRUCTIONAL ACTIVITIES

1. Display printing plant organizational charts and review the printing work flow process. Define and discuss terms and concepts related to plant economics and management (E1.11.1, E1.11.2).
2. Visit a printing plant and have students observe various phases of copy preparation, printing, and finishing processes. Obtain and discuss information on shop or plant estimating procedures (E1.11.2-E1.11.4).
3. Provide students with hypothetical printing jobs and the necessary resources or information required to identify specific costs. Have them prepare cost estimates for several kinds of printing jobs (E1.11.2-E1.11.4, E1.11.8).
4. Explain the printer's code of ethics and laws and regulations prohibiting pornography, counterfeiting, and copyright infringement (E1.11.5, E1.11.7).
5. Have students discuss the moral and ethical responsibilities of the printer (E1.11.6).

SELECTED TOOLS AND MATERIALS

Samples of catalogs for printing supplies
Sample estimation form
Sample job specifications
Sample printing plant or shop organizational chart
Sample schedule of hourly rates for plant personnel
Sample schedule of per page typesetting costs
Instructor-prepared guidelines

SELECTED AUDIOVISUAL MATERIALS

Filmstrip/Cassette: The Small Print Shop: Introduction and Copy Handling. Career Aids, Inc.
Transparencies: What is Graphic Arts? DCA Educational Products.

SELECTED REFERENCES

Curriculum Manual for Graphic Arts, Block XII. Vocational-Technical Division of the New Mexico State Department of Education.

Application

CONTENT/CONCEPT

1. INTRODUCING GRAPHIC COMMUNICATIONS TECHNOLOGY

TASK/COMPETENCY

1.12 Compare types of paper and ink

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

COURSE

Graphic Communications (8458)

1.12

PERFORMANCE OBJECTIVE

P1.12 Given a selection of papers and inks used in graphic arts and other necessary resources, compare types of paper and ink. For the papers, state the classification, size, weight, and appropriate uses. For the inks, state the classification, describe the body, length, vehicle, pigment, and tack characteristics, and state the appropriate uses. Performance must be 85% correct according to instructor-prepared checklist.

SELECTED ENABLING OBJECTIVES

E1.12.1 Define the following terms and concepts related to various types of ink and paper used in the graphic arts industry: vehicle, pigment, body, length, tack, milling, debarker, chipping machine, digester, fiber, pulp, blender, papermaking machine, grain, paper finish, text, wire side, felt side, watermark, dandy roll, ream, "M," opacity, business grade, book grade, bristol grade, label grade, newsprint, and ISO.

E1.12.2 Describe the process of manufacturing paper.

E1.12.3 Differentiate among kinds, sizes, and weights of paper.

E1.12.4 Identify factors to consider in selecting the proper kind of paper for a particular job.

E1.12.5 List the components used in the manufacture of ink.

E1.12.6 Differentiate among different kinds of ink.

E1.12.7 Identify factors to consider in selecting the proper ink for a particular job.

E1.12.8 Demonstrate procedure for selecting and mixing ink colors.

CRITERION-REFERENCED MEASURE

C1.12 Statements and description of inks and papers, 85% correct according to instructor-prepared checklist

SELECTED INSTRUCTIONAL ACTIVITIES

1. Assign appropriate reading in text and have students define key terms and concepts related to characteristics and uses of various types of ink and paper (E1.12.1).
2. Have students examine various paper stocks and describe the size, weight, grain, and finish of each type. Discuss the appropriate uses for each type (E1.12.3, E1.12.4).
3. Plan a visit to a paper or ink manufacturing company or paper distributor (E1.12.2, E1.12.5).
4. Identify and have students discuss the composition and characteristics of different types of inks and the appropriate uses for each type (E1.12.5-E1.12.7).
5. Demonstrate how to select and mix colors for ink (E1.12.8).

SELECTED TOOLS AND MATERIALS

Samples of assorted inks
Paper samples (bond, book, offset, text, cover, duplicator, ledger, and sketch)
Instructor-prepared checklist

SELECTED AUDIOVISUAL MATERIALS

Film: How Paper is Made. Hammermill Paper Company.
Transparencies: Paper. Teaching Aids, Inc.

SELECTED REFERENCES

Graphic Arts (Graphic Communications, Senior High--Level 4), Unit VIII. Eddie Poehls et al.
Understanding Graphic Arts. Kenneth F. Hird.

Application

CONTENT/CONCEPT

1. INTRODUCING GRAPHIC COMMUNICATIONS TECHNOLOGY

TASK/COMPETENCY

1.13 Identify binding and finishing processes

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

COURSE

Graphic Communications (8458)

1.13

PERFORMANCE OBJECTIVE

P1.13 Given samples of finished printing jobs, identify binding and finishing processes used. Each process identified should be described and its use stated according to instructor-prepared checklist.

SELECTED ENABLING OBJECTIVES

E1.13.1 Identify examples of embossing, die cutting, laminating, perforating, slitting, stapling, stitching, comb binding, adhesive binding, and loose leaf binding.

E1.13.2 Cite examples of uses for each binding or finishing process.

E1.13.3 Compare costs of each type of finishing and relate this information to the overall cost of a printing job.

CRITERION-REFERENCED MEASURE

C1.13 Identifications of bindings and finishing processes, 100% correct according to instructor-prepared checklist

SELECTED INSTRUCTIONAL ACTIVITIES

1. Display samples of the various finishing and binding processes; have students identify each type (E1.13.1).
2. Have students bring in and display examples of various finishing and binding processes (E1.13.1).

SELECTED TOOLS AND MATERIALS

Samples of binding and finishing processes (embossing, die cutting, laminating, perforating, slitting, stapling, stitching, comb binding, adhesive binding, and loose leaf binding)
Instructor-prepared checklist

SELECTED AUDIOVISUAL MATERIALS

Filmstrip: Bindery Operations. Singer Career Systems.
Filmstrip: Post-Press Operations. Singer Career Systems.

SELECTED REFERENCES

Graphic Communications, 2nd ed., Chapters 12 and 13. Richard J. Broekhuizen.

Application

CONTENT/CONCEPT
1. INTRODUCING GRAPHIC COMMUNICATIONS TECHNOLOGY

PROGRAM
GRAPHIC COMMUNICATIONS (21.0106)

TASK/COMPETENCY
1.14 Describe careers and occupations in graphic communications

COURSE
Graphic Communications (8458)

1.14

PERFORMANCE OBJECTIVE

P1.14 Given the necessary resources, describe careers and occcupations in graphic communications. Information should include names and types of major occupations in the field, a list of personal traits and skills important for occupational or career success, and a list of advantages and disadvantages of each occupation. An oral or written report must be rated 90% accurate according to instructor-prepared guidelines.

SELECTED ENABLING OBJECTIVES

E1.14.1 Identify branches of the graphic communications industry and describe their functions.

E1.14.2 Describe careers in design, advertising art, and display (examples: advertising artist and package designer).

E1.14.3 Describe careers in writing, editing, and office or financial management (examples: technical writer, copy editor, or estimator).

E1.14.4 Describe careers in sales (examples: advertising space, products, and materials).

E1.14.5 Describe careers in production or services (examples: camera operator, stripper, typesetter, press operator, and binder).

E1.14.6 List personal traits and skills important for success in specific communications occupations.

E1.14.7 Identify the advantages and disadvantages of specific graphic communications occupations.

E1.14.8 Describe present or anticipated job opportunities in the field of graphic communications involving demographic publishing, optical character recognition (OCR), electronic scanners, fiber optics, audio-recognition, voice-activated transcription, and cable and satellite television.

CRITERION-REFERENCED MEASURE

C1.14 Oral or written report, 90% accurate according to instructor-prepared guidelines

SELECTED INSTRUCTIONAL ACTIVITIES

1. Collect and display pictures to illustrate various present or future jobs within the graphic communications field (E1.14.1-E1.14.8).

2. Demonstrate how to locate and interpret job and career information in the Dictionary of Occupational Titles and the Occupational Outlook Handbook (E1.14.1-E1.14.8).

3. Provide pamphlets and other career information references; using these references, have each student select and research two or more occupations and report findings to the class (E1.14.1-E1.14.8).

SELECTED TOOLS AND MATERIALS

Instructor-prepared guidelines

SELECTED AUDIOVISUAL MATERIALS

Filmstrip/Cassette Library Kit:	Careers in Graphic Arts. Pathescope Educational Media.
Filmstrip/Video Cassette:	Exploring Vocations--Printing (Communications and Media). Learning Arts.
Filmstrip/Cassette Series:	"Graphic Services," Career Exploration Series. Edupac, Inc.
Transparencies:	What is Graphic Arts? DCA Educational Products.

SELECTED REFERENCES

Dictionary of Occupational Titles, 4th ed. U.S. Department of Labor, Employment, and Training Administration

General Industrial Education, 6th ed., Section IV, Unit 30. Chris H. Groveman and John Feirer.

Graphic Arts. Basic Industrial Arts Series, Chapter 1. Wilbur R. Miller, Richard J. Broekhuizen, Marion E. Maddox, and Lavon B. Smith.

Graphic Communications, 2nd ed., Chapter 15. Richard J. Broekhuizen.

Occupational Outlook Handbook, U.S. Department of Labor, Bureau of Labor Statistics.

Opportunities in Graphic Communications. George Reinfeld.

Photo-Offset Fundamentals, 4th ed., Chapters 1 and 3. John E. Cogoli.

Understanding Graphic Arts. Kenneth F. Hird.

CONTENT/CONCEPT

2. INTEGRATING THE STUDENT ORGANIZATION THROUGHOUT THE COURSE

TASKS/COMPETENCIES

2.1 Participate in AIASA classroom activities

2.2 Identify community (industrial) and technical resources

2.3 Participate in school or community improvement activities

2.4 Participate in a group enterprise project

2.5 Participate in competitive events

Application

CONTENT/CONCEPT

2. INTEGRATING THE STUDENT ORGANIZATION THROUGHOUT THE COURSE

TASK/COMPETENCY

2.1 Participate in AIASA classroom activities

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

COURSE

Graphic Communications (8458)

2.1

PERFORMANCE OBJECTIVE

P2.1 Given the necessary resources and supplies, participate in American Industrial Arts Student Association (AIASA) classroom activities. Participation must be rated acceptable according to student organization guidelines.

SELECTED ENABLING OBJECTIVES

E2.1.1 Identify the goals of AIASA.

E2.1.2 Participate in classroom elections for AIASA officers and define the duties of class president, secretary, treasurer, reporter, sergeant-at-arms, parliamentarian, and historian.

E2.1.3 Participate as officer or voting member in democratic classroom decision-making activities.

E2.1.4 Identify the parts of the AIASA seal.

E2.1.5 Explain the meaning of the AIASA motto and goals.

CRITERION-REFERENCED MEASURE

C2.1 Participation rated acceptable according to student organization guidelines

SELECTED INSTRUCTIONAL ACTIVITIES

1. List and discuss the goals of AIASA; provide students with background on the local, state, and national organization (E2.1.1).

2. Have students organize class for association activities; supervise election of class officers and discuss duties of officers and members (E2.1.2).

3. Demonstrate parliamentary procedure as necessary and serve in an advisory capacity during group meetings (E2.1.3).

4. Display association seal, motto, and goals on classroom bulletin board (E2.1.4, E2.1.5).

SELECTED TOOLS AND MATERIALS

AIASA banner
AIASA notebook
Officer symbols

SELECTED AUDIOVISUAL MATERIALS

Film: Art of Communication: How to Conduct a Meeting (#21908). Virginia Department of Education.
TV/Tape: In-Class AIASA Management. Virginia Department of Education.
Slides: Move with Tomorrow. Virginia Department of Education.
Slides: National AIASA--A Classroom Experience. National AIASA.

SELECTED REFERENCES

Student Association Activities in Industrial Arts Instruction. Virginia Department of Education.

CONTENT/CONCEPT

2. INTEGRATING THE STUDENT ORGANIZATION THROUGHOUT THE COURSE

TASK/COMPETENCY

2.2 Identify community (industrial) and technical resources

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

COURSE

Graphic Communications (8458)

2.2

PERFORMANCE OBJECTIVE

P2.2 Given the necessary resources and supplies, identify community and technical resources that may be incorporated in student organization classroom activities. Identification must be rated acceptable according to organization guidelines.

SELECTED ENABLING OBJECTIVES

E2.2.1 Identify possible community and technical resources to investigate.

E2.2.2 List factors involved in successful planning for a field trip or guest speaker.

E2.2.3 Participate in committee or class activities to select a possible classroom speaker or to plan a class field trip.

CRITERION-REFERENCED MEASURE

C2.2 Identifications of community and technical resources rated acceptable according to student organization guidelines

SELECTED INSTRUCTIONAL ACTIVITIES

1. Assist students in identifying possible community and technical resources to investigate as a student organization project (E2.2.1).

2. Discuss factors involved in successful planning for a field trip or guest speaker (E2.2.2).

3. Have students invite speakers from industry to speak on topics of interest or to give special demonstrations; involve students in selecting and planning field trips (E2.2.3).

SELECTED TOOLS AND MATERIALS

Directories listing local industries

SELECTED AUDIOVISUAL MATERIALS

None identified

SELECTED REFERENCES

Student Association Activities in Industrial Arts Instruction. Virginia Department of Education.

Application

CONTENT/CONCEPT

2. INTEGRATING THE STUDENT ORGANIZATION THROUGHOUT THE COURSE

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

TASK/COMPETENCY

2.3 Participate in school or community improvement activities

COURSE

Graphic Communications (8458)

2.3

PERFORMANCE OBJECTIVE

P2.3 Given the necessary resources and supplies, participate in community or school improvement activities within the classroom setting. Participation must be rated acceptable according to student organization guidelines.

SELECTED ENABLING OBJECTIVES

E2.3.1 Identify possible school or community improvement projects.

E2.3.2 List factors to consider when planning and carrying out successful group projects.

E2.3.3 Select a community or school improvement project, determine tasks to be done, and determine duties and responsibilities of class members.

E2.3.4 Evaluate success of project upon completion.

CRITERION-REFERENCED MEASURE

C2.3 In-class participation rated acceptable according to student organization guidelines

SELECTED INSTRUCTIONAL ACTIVITIES

1. Help students identify possible school or community improvement projects (E2.3.1).
2. Discuss factors to consider when planning and carrying out successful group projects (E2.3.2).
3. Help students select, plan, implement, and evaluate a school or community improvement project (E2.3.3, E2.3.4).

SELECTED TOOLS AND MATERIALS

Directories of local service and social agencies in community

SELECTED AUDIOVISUAL MATERIALS

None identified

SELECTED REFERENCES

Annual Program of AIASA Activities, Guide 5. Virginia Department of Education.
Student Association Activities in Industrial Arts Instruction. Virginia Depart-
of Education.

Application

CONTENT/CONCEPT

2. INTEGRATING THE STUDENT ORGANIZATION THROUGHOUT THE COURSE

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

TASK/COMPETENCY

2.4 Participate in a group enterprise project

COURSE

Graphic Communications (8458)

2.4

PERFORMANCE OBJECTIVE

P2.4 Given the necessary resources, tools, equipment, and supplies, participate in a group enterprise project planned as a classroom activity. Participation must be rated acceptable according to student organization guidelines.

SELECTED ENABLING OBJECTIVES

E2.4.1 Identify possible enterprise projects suitable for a classroom student organization.

E2.4.2 List factors to consider when planning and implementing a group enterprise project.

E2.4.3 Select a group enterprise project, determine tasks to be done, and determine duties of class members.

E2.4.4 Evaluate success of project upon completion.

CRITERION-REFERENCED MEASURE

C2.4 In-class participation rated acceptable according to student organiza- guidelines

SELECTED INSTRUCTIONAL ACTIVITIES

1. Help students identify possible enterprise projects; share previous project experiences (E2.4.1).
2. Discuss factors to consider when planning and implementing a group enterprise project; include mass production techniques as a factor for consideration (E2.4.2).
3. Help students plan, organize, implement, and evaluate an enterprise project (E2.4.3, E2.4.4).

SELECTED TOOLS AND MATERIALS

None identified

SELECTED AUDIOVISUAL MATERIALS

Slides of previous contests or competitions, if available

SELECTED REFERENCES

Annual Program of AIASA Activities, Guide 5. Virginia Department of Education.
Student Association Activities in Industrial Arts Instruction. Virginia Department of Education.

Application

CONTENT/CONCEPT

2. INTEGRATING THE STUDENT ORGANIZATION THROUGHOUT THE COURSE

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

TASK/COMPETENCY

2.5 Participate in competitive events

COURSE

Graphic Communications (8458)

2.5

PERFORMANCE OBJECTIVE

P2.5 Given the necessary resources, tools, equipment, and materials, participate in competitive events at the local, state, or national level. In-class participation must be rated acceptable according to school policy and student organization guidelines.

SELECTED ENABLING OBJECTIVES

E2.5.1 List types and purposes of competitive events; identify standards of achievement in craft quality, performance, and safety.

E2.5.2 Examine or establish procedures and rules for a competitive event; identify skills or qualifications needed to enter the event.

E2.5.3 Determine how achievements will be recognized or rewarded after the competition.

E2.5.4 Enter of conduct a competitive event.

CRITERION-REFERENCED MEASURE

C2.5 In-class participation rated acceptable according to school policy and student organization guidelines

SELECTED INSTRUCTIONAL ACTIVITIES

1. Discuss types and purposes of competitive events (E2.5.1).
2. Display sample contest entry forms and rules; discuss competition procedures and skills or qualifications needed to enter designated competitions (E2.5.2).
3. Discuss ways achievement is rewarded or recognized in competitive events (E2.5.3).
4. Help students enter or conduct a competitive event (E2.5.4).

SELECTED TOOLS AND MATERIALS

None identified

SELECTED AUDIOVISUAL MATERIALS

None identified

SELECTED REFERENCES

Standards for AIASA Events, Guide 6. Virginia Department of Education.
Student Association Activities in Industrial Arts Instruction. Virginia Department of Education.

CONTENT/CONCEPT

3. GENERATING IMAGES AND PREPARING COPY

TASKS/COMPETENCIES

3.1 Prepare thumbnail, rough, and comprehensive layouts

3.2 Apply dry transfer lettering and border tape

3.3 Select and paste up clip art

3.4 Generate strike-on images, using a typewriter

3.5 Generate images, using the stripprinter

3.6 Mark percentage of enlargement or reduction required on photographs

3.7 Crop and size photographs

3.8 Apply register marks and mark colors

3.9 Cut outlines of artwork in masking film

3.10 Proof camera-ready copy for photo-reproduction quality

Application

CONTENT/CONCEPT

3. GENERATING IMAGES AND PREPARING COPY

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

TASK/COMPETENCY

3.1 Prepare thumbnail, rough, and comprehensive layouts

COURSE

Graphic Communications (8458)

3.1

PERFORMANCE OBJECTIVE

P3.1 Given sketch paper, pencils, and other necessary equipment and supplies, prepare thumbnail, rough, and comprehensive layouts. Each layout must be neat and accurate and must be rated acceptable according to instructor-prepared specifications.

SELECTED ENABLING OBJECTIVES

E3.1.1 Distinguish among the types of layouts.

E3.1.2 Identify the proper materials necessary to produce each type of layout.

E3.1.3 Describe the equipment necessary to produce the various layouts; explain how to use each piece of equipment.

CRITERION-REFERENCED MEASURE

C3.1 Neat and accurate layouts, rated acceptable according to instructor-prepared specifications

SELECTED INSTRUCTIONAL ACTIVITIES

1. Display examples of thumbnail, rough, and comprehensive layouts (E3.1.1).
2. Have students use a variety of papers and pencils and select the best for a particular job (E3.1.2).
3. Have students produce one of each of the various types of layouts (E3.1.1-(E3.1.3).

SELECTED TOOLS AND MATERIALS

Sketch paper
Pencils, assorted
Examples of layouts
T-square
Triangle
Drafting/masking tape
Drawing board

SELECTED AUDIOVISUAL MATERIALS

Filmstrip/Cassette: Basic Commercial Art Skills. Teaching Aids, Inc.
Sound Filmstrip: Developing a Mechanical. McKnight Publishing Company.

SELECTED REFERENCES

Graphic Communications, 2nd ed., pp. 41-42. Richard J. Broekhuizen.

Application

CONTENT/CONCEPT

3. GENERATING IMAGES AND PREPARING COPY

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

TASK/COMPETENCY

3.2 Apply dry transfer lettering and border tape

COURSE

Graphic Communications (8458)

3.2

PERFORMANCE OBJECTIVE

P3.2 Given the necessary equipment and supplies and copy or headlines to be set, apply dry transfer lettering and border tape. Transferred letters must lie flat with no cracks or chips and must be aligned with guidelines. Finished product must be free from warping. Border tape must be applied in a straight line as measured by a T-square or straight edge, and all corners must be neat with no gaps or excessive overlaps.

SELECTED ENABLING OBJECTIVES

E3.2.1 Define: acetate, adhesive lettering, burnish, font, transfer lettering, and wax-backed lettering.

E3.2.2 Identify and compare various types of adhesive and transfer materials.

E3.2.3 Describe how to select appropriate type style and point size for copy or headlines.

E3.2.4 Identify the necessary tools, equipment, and supplies for applying transfer type.

E3.2.5 Explain how nonreproducing guidelines aid in alignment of transfer letters.

E3.2.6 Explain use of burnisher.

E3.2.7 Describe manufacturer's instructions for position and transferring letters to receiver paper.

E3.2.8 Compare dry-transfer lettering with adhesive lettering, calligraphy, compugraphic typesetting, stenciling, and other methods of image generation.

CRITERION-REFERENCED MEASURE

C3.2 Transferred letters flat with no cracks or chips and aligned with guidelines, and finished product free from warping; border tape applied in a straight line as measured by a T-square or straight edge, and all corners neat with no gaps or excessive overlaps

SELECTED INSTRUCTIONAL ACTIVITIES

1. Display samples of dry transfer, adhesive, and wax-backed lettering sheets and explain how they are used in design, layout, and photomechanical reproduction. Compare dry transfer lettering to other image generation methods (E3.2.1, E3.2.9).
2. Display supplies and materials needed to apply dry transfer letters (E3.2.4).
3. Have students identify and discuss the guidelines for selecting appropriate typefaces and point sizes (E3.2.3).
4. Demonstrate and explain procedures for applying dry transfer lettering. Stress the necessity of establishing guidelines, maintaining accurate spacing between letters and words, and using proper burnishing techniques (E3.2.4-E3.2.7).
5. Supervise students practice in selecting and applying dry transfer lettering. Have students critique one another's work (E3.2.1-E3.2.8).

SELECTED TOOLS AND MATERIALS

Border tape
Drawing board
Inking powder
Utility knife/blade cutter or razor blade
Drafting/masking tape
Blue nonreproducing pen/pencil
Tracing paper
Transfer letter sheet with backing
Triangle
T-square

SELECTED AUDIOVISUAL MATERIALS

Filmstrip/Cassette: Basic Commercial Art Skills. Teaching Aids, Inc.
Sound Filmstrip: Developing a Mechanical. McKnight Publishing Company.
Filmstrip/Cassette: Display Lettering. Teaching Aids, Inc.

SELECTED REFERENCES

Curriculum Manual for Graphic Arts, Block III. Vocational-Technical Division of the New Mexico State Department of Education.
Graphic Communications, 2nd ed., Unit 8. Richard J. Broekhuizen.
Graphic Layout and Design, Section 1, Unit 6. Gerald A. Silver.

Application

CONTENT/CONCEPT

3. GENERATING IMAGES AND PREPARING COPY

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

TASK/COMPETENCY

3.3 Select and paste up clip art

COURSE

Graphic Communications (8458)

3.3

PERFORMANCE OBJECTIVE

P3.3 Given clip art books and the necessary equipment and supplies, select and paste up clip art. Art selected must fit the allotted space and must be suitable for the purpose, pasteups must be straight as measured by T-square and triangle, and flat must be clean and undamaged.

SELECTED ENABLING OBJECTIVES

E3.3.1 List various sources for clip art (examples: clip art services and computer software).

E3.3.2 Identify high quality and low quality clip art and the results of using each.

E3.3.3 Explain how to select clip art to fit a designated area.

E3.3.4 Identify and use different types of adhesive to mount clip art.

E3.3.5 Describe how to check accuracy of pasteups with T-square and triangle.

CRITERION-REFERENCED MEASURE

C3.3 Selections fit allotted space and suitable for purpose; pasteups straight as measured by T-square and triangle; flat clean and undamaged

SELECTED INSTRUCTIONAL ACTIVITIES

1. Have students identify the various types of clip art and compare the advantages of each (E3.3.1, E3.3.2).

2. Demonstrate the proper technique for using rubber cement or wax for adhering copy (E3.3.3).

3. Have students construct pasteups, using different types of clip art (E3.3.3-E3.3.5).

SELECTED TOOLS AND MATERIALS

Adhesive
Clip art books
Scissors
Layout paper
Tracing paper
T-square
Triangle
Utility knife/blade cutter or razor blade

SELECTED AUDIOVISUAL MATERIALS

Sound Filmstrip: Graphic Art Design. McKnight Publishing Company.
Filmstrip/Cassette: Principles of Graphic Design. Teaching Aids, Inc.

SELECTED REFERENCES

Graphic Communications, 2nd ed., Richard J. Broekhuizen.
Graphic Layout and Design. Gerald A. Silver.

Application

CONTENT/CONCEPT

3. GENERATING IMAGES AND PREPARING COPY

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

TASK/COMPETENCY

3.4 Generate strike-on images, using a typewriter

COURSE

Graphic Communications (8458)

3.4

PERFORMANCE OBJECTIVE

P3.4 Given a typewriter, paper, and the necessary guidelines, generate strike-on images, using a typewriter. Copy produced must be free of typographical errors, smudges, and stray marks, overall appearance should be neat, and copy must fit into allotted space on the layout.

SELECTED ENABLING OBJECTIVES

E3.4.1 Differentiate between a strike-on image and other methods of composition.

E3.4.2 Describe the differences between the images generated by fabric and carbon typewriter ribbons.

E3.4.3 Describe the differences among several models of typewriters, noting particularly the feature of interchangable elements.

E3.4.4 Identify methods for producing copy with justified margins.

E3.4.5 Explain how to correct errors in typed copy.

CRITERION-REFERENCED MEASURE

C3.4 Copy produced free of typographical errors, smudges, and stray marks; overall appearance neat; and copy of proper size so that it fits allotted space

SELECTED INSTRUCTIONAL ACTIVITIES

1. Lead class discussion on methods of composition and the advantages and disadvantages of each (E3.4.1-E3.4.3).
2. Have students change element on typewriter if it has that option (E3.4.3).
3. Have students type copy with justified and unjustified margins (E3.4.4).
4. Demonstrate how to correct error in typewritten copy (E3.4.5).

SELECTED TOOLS AND MATERIALS

Typewriter
Correction fluid
Correction tape

SELECTED AUDIOVISUAL MATERIALS

None identified

SELECTED REFERENCES

Graphic Communications, 2nd ed., pp. 86-88. Richard J. Broekhuizen.

Application

CONTENT/CONCEPT	PROGRAM
3. GENERATING IMAGES AND PREPARING COPY	GRAPHIC COMMUNICATIONS (21.0106)
TASK/COMPETENCY	**COURSE**
3.5 Generate images, using the strippprinter	Graphic Communications (8458)

3.5

PERFORMANCE OBJECTIVE

P3.5 Given a strippprinter, assorted fonts, chemicals, and the necessary accessories, generate images, using the strippprinter. Type produced must be properly spaced, free of typographical errors, and correctly exposed and processed.

SELECTED ENABLING OBJECTIVES

E3.5.1 Identify the parts of the strippprinter.

E3.5.2 List steps for loading tape and paper in the strippprinter.

E3.5.3 Describe method for ensuring the proper spacing of individual characters and words.

E3.5.4 List steps in exposing and processing paper for proper contrast.

E3.5.5 Identify other types of photocomposition equipment and describe their importance to the graphic arts industry (examples: word processors, phototypesetters, computers).

CRITERION-REFERENCED MEASURE

C3.5 Produced type properly spaced, free of typographical errors, and correctly exposed and processed

SELECTED INSTRUCTIONAL ACTIVITIES

1. Discuss the differences among the methods of photocomposition (E3.5.5).

2. Demonstrate how to use the stripprinter to produce correctly exposed type; have students follow correct method and produce copy on the stripprinter (E3.5.1-E3.5.4).

SELECTED TOOLS AND MATERIALS

Stripprinter
Stripprinter fonts
Stripprinter chemicals
Stripprinter photographic paper

SELECTED AUDIOVISUAL MATERIALS

None identified

SELECTED REFERENCES

Graphic Communications, 2nd ed., pp. 88-89. Richard J. Broekhuizen.

Application

CONTENT/CONCEPT

3. GENERATING IMAGES AND PREPARING COPY

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

TASK/COMPETENCY

3.6 Mark percentage of enlargement or reduction required on photographs

COURSE

Graphic Communications (8458)

3.6

PERFORMANCE OBJECTIVE

P3.6 Given photographs, comprehensive layout, grease pencil, proportion wheel, ruler, pen, T-square, triangle, and tracing paper, mark percentage of enlargement or reduction required on photographs. Indications or crop marks should be clear and easy to read and should reflect the correct percentage needed to fit the photograph in the space allotted on the layout. The percentage and desired dimensions should appear on or be attached to the photograph correctly, and the original photograph must be undamaged.

SELECTED ENABLING OBJECTIVES

E3.6.1 Define: scaling, cropping, proportional wheel, crop marks, dimension, tip on, depth of artwork, width of artwork, diagonal-line method, and mathematical method.

E3.6.2 Demonstrate how to measure the original photograph and the space allotted on the layout.

E3.6.3 Use the diagonal-line method to determine the percentage of enlargement or reduction.

E3.6.4 Use the mathematical method to determine the percentage of enlargement or reduction.

E3.6.5 Use the proportion wheel to determine the percentage of enlargement or reduction.

E3.6.6 Describe method for placing crop marks on overlay or in margin of photograph.

E3.6.7 List ways to identify desired dimensions on photograph: on an overlay, in the margin, or on a slip of paper taped to the margin.

CRITERION-REFERENCED MEASURE

C3.6 Indications marked so that they are clear, easy to read, and reflect correct percentage needed; percentage and desired dimensions on or attached to photograph correctly; original photograph undamaged

SELECTED INSTRUCTIONAL ACTIVITIES

1. Define and discuss key terms and concepts related to enlargement and reduction of photographs or artwork (E3.6.1).

2. Have students measure layout space and original photographs (E3.6.2).

3. Demonstrate the diagonal-line, mathematical, and proportion wheel methods of determining percentages of reduction or enlargement (E3.6.3-E3.6.5).

4. Have students practice using each method of determining enlargements and reductions (E3.6.3-E3.6.5).

5. Demonstrate how to place crop mark instructions (E3.6.6).

6. Discuss guidelines for proper care and handling of photographs; explain why paper clips should not be used and why instructions should not be written on the back of a photograph (E3.6.7).

SELECTED TOOLS AND MATERIALS

Comprehensive layout
Grease pencil
Blue nonreproducing pen/pencil
Photographs
Proportion wheel
Steel rulers, standard and metric
Tracing paper
Triangle
T-square

SELECTED AUDIOVISUAL MATERIALS

Filmstrip/Cassette: Producing Negatives for the Offset Process. Bergwall Productions, Inc.

SELECTED REFERENCES

Graphic Communications, 2nd ed., p. 50. Richard J. Broekhuizen.
Graphic Layout and Design, Section 7. Gerald A. Silver.

Application

CONTENT/CONCEPT

3. GENERATING IMAGES AND PREPARING COPY

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

TASK/COMPETENCY

3.7 Crop and size photographs

COURSE

Graphic Communications (8458)

3.7

PERFORMANCE OBJECTIVE

P3.7 Given comprehensive layout including space allotted for photos, ruler, photographs to be cropped and sized, proportion wheel, grease pencil, T-square, triangle, tracing paper, and drawing board, crop and size photographs so that they conform to the proportions allotted in the layout and do not bleed into copy or margins. The cropping must not sacrifice clarity or meaning of the photos, and all cropping, sizing, and positioning information must appear on or be attached to the photograph.

SELECTED ENABLING OBJECTIVES

E3.7.1 Demonstrate how to measure the space allotted in the comprehensive layout.

E3.7.2 Describe the method for calculating the percentage of enlargement or reduction, using the proportion wheel.

E3.7.3 Use a grease pencil, T-square, and triangle to apply crop marks to a photograph.

E3.7.4 Explain how to mark photographs for the percentage of enlargement or reduction.

E3.7.5 Describe how to identify each photograph as to its position on a comprehensive layout.

CRITERION-REFERENCED MEASURE

C3.7 Photographs cropped so that they conform to proportions allotted and do not bleed into copy or margins; clarity **or** meaning not sacrificed by cropping; cropping, sizing, and positioning information on or attached to photograph

SELECTED INSTRUCTIONAL ACTIVITIES

1. Demonstrate the use of the proportion wheel (E3.7.2).
2. Have students figure percentages so that photographs will fit comprehensive layout (E3.7.2).
3. Demonstrate how to measure the windows or space allotted on the comprehensive layout (E3.7.1).
4. Have students mark each photograph for cropping (E3.7.3).
5. Discuss methods of marking photographs for percentage, size, and placement on layout (E3.7.3-E3.7.5).

SELECTED TOOLS AND MATERIALS

Comprehensive layout and photos
Drawing board
Grease pencil
Proportion wheel
Steel rulers, standard and metric
Tracing paper
Triangle
T-square
Samples of cropped and sized photographs

SELECTED AUDIOVISUAL MATERIALS

Filmstrip/Cassette: The Printer's Photographer. McKnight Publishing Company.

SELECTED REFERENCES

Graphic Layout and Design, p. 285. Gerald A. Silver.

Application

CONTENT/CONCEPT

3. GENERATING IMAGES AND PREPARING COPY

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

TASK/COMPETENCY

3.8 Apply register marks and mark colors

COURSE

Graphic Communications (8458)

3.8

PERFORMANCE OBJECTIVE

P3.8 Given acetate, mechanical flat, registration marks, technical pen, T-square, triangle, and masking tape, apply register marks and mark colors. Register marks must be applied correctly to ensure that all overlays are positioned and secured to the mechanical so that they are precisely registered for successive printed images. Colors should be indicated clearly on each overlay, and any special instructions for the printer should be noted. The final mechanical flat and overlays should be clean, neat, and perfectly registered.

SELECTED ENABLING OBJECTIVES

E3.8.1 List steps for positioning and taping overlays on the mechanical flat in the proper position.

E3.8.2 Explain how to mark each overlay for the selected color for printing.

E3.8.3 State the method for applying registration marks to an overlay.

E3.8.4 Describe how to mark instructions to the printer on each overlay.

CRITERION-REFERENCED MEASURE

C3.8 Register marks applied correctly to ensure overlays are positioned and secured to mechanical so that they are precisely registered for successive printed images; colors clearly indicated on each overlay; special instructions for the printer noted; final mechanical flat and overlays clean, neat, and perfectly registered

SELECTED INSTRUCTIONAL ACTIVITIES

1. Demonstrate how to tape mechanical flat to drawing board and position and adhere overlay (E3.8.1).

2. Demonstrate how to apply register marks and color identifications on an overlay (E3.8.2,E3.8.3).

3. Explain what notations are necessary to the printer; have students practice labeling overlays correctly (E3.8.4).

SELECTED TOOLS AND MATERIALS

Acetate
Drafting/masking tape
Mechanical flat
Registration marks
Technical pen
Triangle
T-square
Drawing board
Masking film (rubylith or amberlith)
Blue nonreproducing pen/pencil
Steel rulers, standard and metric
Utility knife/blade cutter or razor blade

SELECTED AUDIOVISUAL MATERIALS

Filmstrip/Cassette: Basic Commercial Arts Skills. Teaching Aids, Inc.

SELECTED REFERENCES

Graphic Communications, 2nd ed., pp. 52-53. Richard J. Broekhuizen.

Application

CONTENT/CONCEPT

3. GENERATING IMAGES AND PREPARING COPY

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

TASK/COMPETENCY

3.9 Cut outlines of artwork in masking film (rubylith)

COURSE

Graphic Communications (8458)

3.9

PERFORMANCE OBJECTIVE

P3.9 Given masking film, artwork, T-square, utility blade cutter, triangle, ruling pen or transferable registration marks, and masking tape, cut outlines of artwork in masking film (rubylith) for color separations. One overlay must be cut for each color. Completed overlays must register correctly with artwork, have all unnecessary masking film removed, have crisp edges without tears, and follow the outlines of the artwork precisely.

SELECTED ENABLING OBJECTIVES

E3.9.1 List steps in taping masking film in place over artwork, using a T-square and triangle for alignment.

E3.9.2 Explain how to cut an overlay to fit each color.

E3.9.4 Demonstrate how to check alignment of overlay after cutting film.

CRITERION-REFERENCED MEASURE

C3.9 One overlay cut for each color; overlays registered correctly with artwork, following the outlines of the artwork precisely; overlays with all unnecessary masking film removed and with crisp edges and no tears

SELECTED INSTRUCTIONAL ACTIVITIES

1. Demonstrate how to type overlays in place and have students practice (E3.9.1).

2. Demonstrate the proper way to cut an overlay, using a utility blade knife; have students practice cutting on scrap film (E3.9.2, E3.9.3).

3. Explain the importance of exact registration and alignment of overlays (E3.9.4).

SELECTED TOOLS AND MATERIALS

Masking film (rubylith or amberlith)
Drafting/masking tape
Clip art books
Registration marks
Triangle
T-square
Utility knife/blade cutter or razor blade

SELECTED AUDIOVISUAL MATERIALS

None identified

SELECTED REFERENCES

None identified

Application

CONTENT/CONCEPT
3. GENERATING IMAGES AND PREPARING COPY

PROGRAM
GRAPHIC COMMUNICATIONS (21.0106)

TASK/COMPETENCY
3.10 Proof camera-ready copy for photo-reproduction qualitly

COURSE
Graphic Communications (8458)

3.10

PERFORMANCE OBJECTIVE
P3.10 Given typeset or original copy, pica rule, non-reproducing blue pencil or pen, and camera-ready copy, proof camera-ready copy for photo-reproduction quality. Proofed copy must be clean and without errors in composition or typography. Copy must be in the correct type style with the proper leading, and it must meet size specifications. Copy must be aligned correctly on the page and must have proper contrast and density. All deviations from original or set copy must be marked for correction with the proper proofreading notations.

SELECTED ENABLING OBJECTIVES
E3.10.1 Identify proofreading symbols and notations for the printer.

E3.10.2 Demonstrate how to measure line lengths with pica rule.

E3.10.3 Demonstrate how to measure leading between lines.

E3.10.4 Demonstrate how to measure borders or margins and overall size of page.

E3.10.5 Describe how to check density of image areas.

E3.10.6 Describe method for checking alignment of pasteups, using T-square and triangle.

E3.10.7 Determine the importance of checking camera-ready copy and notations with final job specifications.

CRITERION-REFERENCED MEASURE
C3.10 Proofed copy clean and free of errors in composition or typography; copy in proper type style with proper leading; copy, in specified size, aligned correctly with proper density and contrast; deviations marked for correction with proper proofreading notations

SELECTED INSTRUCTIONAL ACTIVITIES

1. Explain proofreader marks and notations for the printer; have students practice using these marks and notations (E3.10.1).
2. Demonstrate how to check alignment of pasteups, using a T-square and triangle (E3.10.6).
3. Demonstrate how to measure line length, leading between lines, margins, and page size; provide students with sample copy to practice these measurement techniques (E3.10.2-E3.10.4).
4. Explain what criteria should be used to judge proper density of image areas (E3.10.5).
5. Explain the importance of comparing camera-ready copy and notations to final job specifications (E3.10.7).

SELECTED TOOLS AND MATERIALS

Camera-ready copy
Blue nonreproducing pen/pencil
Pica rule
Typeset or original copy

SELECTED AUDIOVISUAL MATERIALS

Filmstrip/Cassette Series: Black and White Copy Preparation. Bergwall Productions, Inc.

SELECTED REFERENCES

Curriculum Manual for Graphic Arts, Block III. Vocational-Technical Division of the New Mexico State Department of Education.
Graphic Communications, 2nd ed., pp. 76-77. Richard J. Broekhuizen.

CONTENT/CONCEPT

4. PRODUCING REPRODUCTION PHOTOGRAPHS

TASKS/COMPETENCIES

4.1 Describe the parts of a process camera

4.2 Make exposure tests with process camera

4.3 Produce a line negative

4.4 Produce a halftone negative

4.5 Produce line enlargements and reductions

4.6 Mix film processing chemicals

4.7 Develop film by gray scale method

4.8 Develop film by time-temperature method

4.9 Strip or mask negatives

4.10 Strip halftones

4.11 Opaque photostat imperfections

Application

CONTENT/CONCEPT

4. PRODUCING REPRODUCTION PHOTOGRAPHS

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

TASK/COMPETENCY

4.1 Describe the parts of the process camera

COURSE

Graphic Communications (8458)

4.1

PERFORMANCE OBJECTIVE

P4.1 Given a process camera, describe the parts of a process camera with 100% accuracy according to instructor-prepared checklist.

SELECTED ENABLING OBJECTIVES

E4.1.1 Define: copyboard, film board, lens board, lens, copylights, rails, vacuum, timer, bellows, scales, and ground glass.

E4.1.2 Demonstrate how to set camera for the proper percentage of enlargement or reduction.

E4.1.3 Demonstrate how to set the F-stop on the lens.

E4.1.4 Demonstrate how to position original in copyboard.

E4.1.5 Demonstrate how to position film in film board.

CRITERION-REFERENCED MEASURE

C4.1 Description of process camera parts, 100% accurate according to instructor-prepared checklist.

SELECTED INSTRUCTIONAL ACTIVITIES

1. Have students describe the parts of a process camera and explain the function of each part (E4.1.1).

2. Explain how the F-stop system works and relate this to the process camera (E4.1.3).

3. Have students practice making adjustments to set the camera for proper exposure and percentage of enlargement or reduction (E4.1.2, E4.1.3).

4. Have students discuss the importance of correctly positioning original in the copyboard and film in the film board (E4.1.4, E4.1.5).

SELECTED TOOLS AND MATERIALS

Process camera
Illustrations of camera parts and functions
Instructor-prepared checklist

SELECTED AUDIOVISUAL MATERIALS

Filmstrip: Halftones and Screens. Singer Career Systems.
Filmstrip/Cassette: Using the Camera. Greystone Films, Inc.

SELECTED REFERENCES

Graphic Communications, 2nd ed., Chapter 9, Richard J. Broekhuizen.

Application

CONTENT/CONCEPT

4. PRODUCING REPRODUCTION PHOTOGRAPHS

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

TASK/COMPETENCY

4.2 Make exposure tests with process camera

COURSE

Graphic Communications (8458)

4.2

PERFORMANCE OBJECTIVE

P4.2 Given a process camera, copy to be exposed, and a sheet of black paper, make exposure tests with the process camera by exposing one area of the copy for varying lengths of time. The resulting negative should show clearly contrasting levels of exposure and must be rated acceptable according to instructor-prepared checklist.

SELECTED ENABLING OBJECTIVES

E4.2.1 Demonstrate how to adjust process camera for line and halftone exposure.

E4.2.2 Explain procedure used in preparing developer, fixer, and stop bath.

E4.2.3 Demonstrate how to make an exposure test.

E4.2.4 List the steps in film development.

E4.2.5 Describe negatives resulting from exposure tests and identify the best exposure to use.

CRITERION-REFERENCED MEASURE

C4.2 Resulting negative with clearly contrasting levels of exposure rated acceptable according to instructor-prepared checklist

SELECTED INSTRUCTIONAL ACTIVITIES

1. Have students identify all parts of a process camera that must be adjusted for line copy and halftone exposure (E4.2.1).

2. Have students practice the procedures used in preparing developer, fixer, and stop bath (E4.2.2).

3. Demonstrate how to make an exposure test; have students discuss resulting negatives (E4.2.3-E4.2.5).

SELECTED TOOLS AND MATERIALS

Black paper
Camera-ready copy
Process camera
Process film
Kodak halftone computer
Safelight
Developing trays
AB developer (Kodalith developer)
Fixer
Stop bath
Gray scale
Densitometer

SELECTED AUDIOVISUAL MATERIALS

Filmstrip/Cassette Series: "Darkroom Problems." Halftone Work--Reversals and Dropouts. Bergwall Productions, Inc.

SELECTED REFERENCES

None identified

Application

CONTENT/CONCEPT

4. PRODUCING REPRODUCTION PHOTOGRAPHS

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

TASK/COMPETENCY

4.3 Produce a line negative

COURSE

Graphic Communications (8458)

4.3

PERFORMANCE OBJECTIVE

P4.3 Given line copy, job specifications, copy camera, gray scale, film, darkroom equipment, and other necessary supplies and equipment, produce a line negative 100% correct according to job specifications. The negative must be clear and free of imperfections.

SELECTED ENABLING OBJECTIVES

E4.3.1 Define: gray scale, film holder, focal length, and line copy.

E4.3.2 Demonstrate how to set up darkroom supplies, equipment, and developing trays.

E4.3.3 Demonstrate how to clean outside and inside surfaces of copyboard glass.

E4.3.4 Explain how to position copy and gray scale on copyboard.

E4.3.5 Describe how to set the lens F-stop.

E4.3.6 Demonstrate how to position lights.

E4.3.7 Demonstrate how to set exposure time.

E4.3.8 Explain how to determine film size.

E4.3.9 List steps in positioning film on vacuum back and completing exposure process.

E4.3.10 Demonstrate how to process film.

E4.3.11 Identify reasons for examining film on light table.

CRITERION-REFERENCED MEASURE

C4.3 Line negative, 100% correct according to job specifications, clear, and free of imperfections

SELECTED INSTRUCTIONAL ACTIVITIES

1. Display samples of line copy and line negatives (E4.3.1-E4.3.11).
2. Define key terms and concepts related to line negative process photography (E4.3.1).
3. Have students make necessary darkroom and camera preparations (E4.3.2, E4.3.3).
4. Demonstrate how to make necessary tests and calculations to determine appropriate exposure time and F-stop for lens in use (E4.3.5, E4.3.7).
5. Demonstrate procedure for exposing and processing a line negative (E4.3.2-E4.3.9).
6. Supervise students in setting up camera, adjusting exposure time and F-stop, positioning copy, and exposing negatives (E4.3.2-E4.3.9).
7. Have students process exposed negatives (E4.3.10).
8. Have students critique quality and density of one another's work (E4.3.11).

SELECTED TOOLS AND MATERIALS

Developing trays
Process film
AB developer (Kodalith developer)
Gray scale
Light table
Original artwork
Process camera
Stop bath
Fixer
Densitometer
Safelight

SELECTED AUDIOVISUAL MATERIALS

Filmstrip/Cassette: Producing a Line Negative. Bergwall Productions, Inc.

SELECTED REFERENCES

Curriculum Manual for Graphic Arts, Block VI. Vocational-Technical Division of the New Mexico State Department of Education.
Graphic Communications, 2nd ed., Chapter 9. Richard J. Broekhuizen.
Understanding Graphic Arts, Chapter 5. Kenneth F. Hird.

Application

CONTENT/CONCEPT

4. PRODUCING REPRODUCTION PHOTOGRAPHS

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

TASK/COMPETENCY

4.4 Produce a halftone negative

COURSE

Graphic Communications (8458)

4.4

PERFORMANCE OBJECTIVE

P4.4 Given continuous tone photographs, white (non-pebbled) illustration board, halftone screen, copy or offset camera with vacuum frame, processors, densitometer, and gray scale card, produce a halftone negative by exposing photographs with a contact halftone screen. Finished halftone negative must have a 10% black dot pattern in whitest area and a 10% pattern in blackest area.

SELECTED ENABLING OBJECTIVES

E4.4.1 Define terms and identify equipment related to halftone photography: halftone, continuous tone copy, vignetting, contact screen, auto screen, halftone dot pattern, emulsion, dot values, screen rulings, highlights, shadows, middle tones, tonal values, gray scale values, reflection density guide, basic density range, excess density range, rescreening, densitometer, calibrated gray scale, visual densitometer, photoelectric densitometer, and duotone.

E4.4.2 State characteristics of continuous tone copy.

E4.4.3 State purpose of halftone photography.

E4.4.4 Examine magenta, gray, and special effects screens, and describe their uses and characteristics.

E4.4.5 Explain why several exposures are necessary to produce a halftone negative.

E4.4.6 Describe method of determining base exposure, using screen density, film speed, and developer strength.

E4.4.7 Determine the necessary film processing equipment and supplies for producing halftones.

E4.4.8 Demonstrate how to make test exposures to calculate detail (middle tone) exposure F-stop and exposure time.

E4.4.9 Demonstrate how to make test exposures to calculate base flash exposure time.

E4.4.10 Demonstrate how to make test exposure of combined flash and middle tone negative results.

E4.4.11 Demonstrate how to make bump exposure test to evaluate white or highlight areas.

E4.4.12 Explain how to determine density range of the original copy, using a reflection density guide or densitometer.

E4.4.13 Identify methods for calibrating exposure computer to determine main exposure and flash exposure times.

E4.4.14 Demonstrate how to prepare camera, set up flashing lamp, position and secure screen over film, and make main exposure.

E4.4.15 Describe how to make flash exposure if copy density range is greater than basic density range.

E4.4.16 Explain how to develop the halftone using the exact same process as used for the test negative.

E4.4.17 Identify reasons for evaluating negatives.

CRITERION-REFERENCED MEASURE

C4.4 Halftone negative with a 10% black dot pattern in whitest area and a 10% white pattern in the blackest area

SELECTED INSTRUCTIONAL ACTIVITIES

1. Have students define and discuss key terms and concepts related to halftone photography; display necessary supplies and equipment (E4.4.1-E4.4.4).
2. Display a variety of halftone negatives produced using various screens and provide students with a chart of special effects patterns (E4.4.4).
3. Demonstrate how to make test exposure negatives and discuss purposes of the tests (E4.4.5-E4.4.11).
4. Demonstrate how to use a reflection density guide or densitometer (E4.4.12).
5. Demonstrate how to use an exposure computer. Stress importance of maintaining consistent exposure or developing conditions and explain why computer must be recalibrated if conditions change (E4.4.13).
6. Demonstrate how to make main and flash exposures. Emphasize need for cleanliness (E4.4.14, E4.4.15).
7. Supervise students in making test exposures and halftone negatives; have students evaluate one another's work (E4.4.1-E4.4.17).

SELECTED TOOLS AND MATERIALS

Continuous tone photographs
Kodak halftone computer
Densitometer
Gray scale
Halftone screens
Safelight
White illustration board
Process camera
Process film
Developing trays
AB developer (Kodalith developer)
Fixer
Stop bath

SELECTED AUDIOVISUAL MATERIALS

Transparencies: Black and White Photography. DCA Educational Products.
Sound Filmstrip: Halftone Photography. McKnight Publishing Company.
Sound Filmstrip: Line Photography--Basic Procedures. McKnight Publishing Company.

SELECTED REFERENCES

Curriculum Manual for Graphic Arts, Block VI, Unit 4. Vocational-Technical Division of the New Mexico State Department of Education.
Graphic Communications, 2nd ed., Unit 31. Richard J. Broekhuizen.
Understanding Graphic Arts, Chapter 5. Kenneth F. Hird.

Application

CONTENT/CONCEPT

4. PRODUCING REPRODUCTION PHOTOGRAPHS

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

TASK/COMPETENCY

4.5 Produce line enlargements or reductions

COURSE

Graphic Communications (8458)

4.5

PERFORMANCE OBJECTIVE

P4.5 Given line copy, job specifications, copy camera, sensitivity guide, processor, proportion wheel, and other necessary camera and darkroom equipment and supplies, produce line enlargements or reductions from original line copy. The reduction and the enlargement must be 100% accurate acacording to job specifications, and each negative must be clear and free of imperfections.

SELECTED ENABLING OBJECTIVES

E4.5.1 Define: shooting percentage, proportion scale, original size, reproduction size, layout space, sizing chart, sensitivity guide (gray scale), focal length, magnification, copyboard, extension, bellows extension, new exposure factor, new exposure time, and copy density.

E4.5.2 Demonstrate how to compute shooting percentage, using a proportion scale.

E4.5.3 Demonstrate how to calculate magnification, copyboard extension, bellows extension, a new exposure factor, and a new exposure time, using mathematical formulas.

E4.5.4 Describe necessary darkroom preparations.

E4.5.5 Explain necessary camera adjustments, using mathematical computations or chart recommendations.

E4.5.6 Demonstrate how to clean outside and inside surfaces of copyboard glass.

E4.5.7 Demonstrate how to position copy and gray scale on copyboard.

E4.5.8 Explain how to position film on vacuum back and complete exposure process.

E4.5.9 List the steps in processing the film.

E4.5.10 Cite reasons for examining film on light table.

CRITERION-REFERENCED MEASURE

C4.5 Line enlargements and reductions, 100% correct according to job specifications, clear and free of imperfections

SELECTED INSTRUCTIONAL ACTIVITIES

1. Have students define and discuss key terms and concepts related to enlargements and reductions (E4.5.1).
2. Display proportion scale and demonstrate how to compute shooting percentages for enlargements and reductions (E4.5.2).
3. Give demonstration on the use of formulas to calculate magnification, copyboard extension, bellows extension, new exposure factor, and new exposure time; have students solve practice problems (E4.5.3).
4. Have students set up darkroom supplies and equipment and make necessary preparations and camera adjustments for a given reduction or enlargement (E4.5.4-E4.5.7).
5. Demonstrate the complete exposure process (E4.5.8).
6. Process the film and demonstrate how to evaluate size, density, and quality of the negative produced (E4.5.9, E4.5.10)
7. Supervise student practice in making enlargements and reductions from line copy (E4.5.1-E4.5.10)

SELECTED TOOLS AND MATERIALS

Developing trays
Gray scale
Light table
Original artwork or line copy
Process camera
Process film
Proportion wheel
Safelight
AB developer (Kodalith developer)
Stop bath
Fixer
Densitometer

SELECTED AUDIOVISUAL MATERIALS

Filmstrip/Cassette Series: "Darkroom Variations." Halftone Work--Reversals and Dropouts. Bergwall Productions, Inc.

Transparencies: Enlarging and Reducing with a Process Camera. DCA Educational Products.

Filmstrip/Cassette: The Offset Shop: Part I. Career Aids, Inc.

SELECTED REFERENCES

Curriculum Manual for Graphic Arts, Block VI. Vocational-Technical Division of the New Mexico State Department of Education.

Graphic Arts: Book II--Process Camera, Stripping, and Platemaking. Mid-America.

Graphic Communications, 2nd ed., Chapter 9. Richard J. Broekhuizen.

Application

CONTENT/CONCEPT
4. PRODUCING REPRODUCTION PHOTOGRAPHS

PROGRAM
GRAPHIC COMMUNICATIONS (21.0106)

TASK/COMPETENCY
4.6 Mix film processing chemicals

COURSE
Graphic Communications (8458)

4.6

PERFORMANCE OBJECTIVE

P4.6 Given containers, measuring cup, appropriate film processing chemicals, and developing trays, mix film processing chemicals accurately according to manufacturer's specifications. All safety precautions must be followed.

SELECTED ENABLING OBJECTIVES

E4.6.1 Identify chemicals needed to process panchromatic and orthochromatic film.

E4.6.2 List the precautions that must be taken for safe use of photographic chemicals.

E4.6.3 Differentiate among developer, fixer, and stop bath according to smell, color, density, and chemical composition.

E4.6.4 Explain chemical reactions that occur during each of the following steps of the film processing: developing stage, stop bath, fixing bath, and washing bath.

E4.6.5 Explain steps to be followed in mixing developer, fixer, and stop bath.

E4.6.6 Explain proper storage procedures for designated chemical solutions.

CRITERION-REFERENCED MEASURE

C4.6 Film processing chemicals mixed accurately according to manufacturer's specifications; all safety precautions followed

SELECTED INSTRUCTIONAL ACTIVITIES

1. Have students list and discuss safety precautions to be observed in handling chemicals; have them list possible consequences of improper use (examples: skin irritations, burns, and eye damage) (E4.6.2).

2. Display developer, fixer, and stop bath and explain distinguishing features of each in terms of smell, color, density, and chemical composition (E4.6.1, E4.6.3).

3. Explain chemical changes that occur during each phase of the film developing process (E4.6.4).

4. Explain how to calculate quantity of chemical to be used (E4.6.5).

5. Demonstrate proper method of mixing photographic chemicals (E4.6.5).

6. Demonstrate how to store and label chemical solutions (E4.6.6).

7. Supervise students practice in mixing chemicals (E4.6.1-E4.6.6).

SELECTED TOOLS AND MATERIALS

Developing sink, temperature controlled
Measuring cup
Storage container
Developing trays
Developer, D76 and Dektol
AB developer (Kodalith developer)
Stop bath
Fixer

SELECTED AUDIOVISUAL MATERIALS

Filmstrip/Cassette: The Printer's Photographer. McKnight Publishing Company.

SELECTED REFERENCES

Comprehensive Graphic Arts, pp. 151 and 159-160. Ervin A. Dennis and John D. Jenkins.
Graphic Communications, 2nd ed., Chapters 9 and 10. Richard J. Broekhuizen.
Understanding Graphic Arts, Chapter 5. Kenneth F. Hird.

Application

CONTENT/CONCEPT

4. PRODUCING REPRODUCTION PHOTOGRAPHS

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

TASK/COMPETENCY

4.7 Develop film by gray scale method

COURSE

Graphic Communications (8458)

4.7

PERFORMANCE OBJECTIVE

P4.7 Given a gray scale, manufacturer's specifications, prepared developer, stop bath, and fixer solutions, and exposed line film, develop film by gray scale method. Film must be processed according to gray scale instructions and film manufacturer's specifications. All safety precautions must be followed.

SELECTED ENABLING OBJECTIVES

E4.7.1 Explain various uses of a gray scale during exposure of copy and development of film.

E4.7.2 List advantages of gray scale method over time-temperature method of developing film.

E4.7.3 Outline procedure for developing film, using the gray scale method.

E4.7.4 Demonstrate how to handle the gray scale image when stripping is performed.

E4.7.5 Identify manufacturer's specifications for drying and handling film.

E4.7.6 List and follow safety precautions.

CRITERION-REFERENCED MEASURE

C4.7 Film processed according to gray scale instructions and film manufacturer's specifications; all safety precautions followed

SELECTED INSTRUCTIONAL ACTIVITIES

1. Display gray scale chart and explain its uses (E4.7.1).
2. Discuss advantages of gray scale method over the time-temperature method of film development (E4.7.2).
3. Develop film, using gray scale while students observe; have students practice film development (E4.7.3).
4. Discuss guidelines for proper handling and drying of film (E4.7.5).
5. Demonstrate how to handle gray scale image when stripping is performed (E4.7.4).
6. Have students critique results of one another's work (E4.7.1-E4.7.6).

SELECTED TOOLS AND MATERIALS

Developing trays
Process film
Film dryer
Gray scale
Safelight
Densitometer
AB developer (Kodalith developer)
Stop bath
Fixer

SELECTED AUDIOVISUAL MATERIALS

Filmstrip/Cassette: Producing a Line Negative. Bergwall Productions, Inc.

SELECTED REFERENCES

Curriculum Manual for Graphic Arts, Block VI. Vocational-Technical Division of the New Mexico State Department of Education.
Graphic Communications, 2nd ed., Chapter 10. Richard J. Broekhuizen.

Application

CONTENT/CONCEPT

4. PRODUCING REPRODUCTION PHOTOGRAPHS

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

TASK/COMPETENCY

4.8 Develop film by time-temperature method

COURSE

Graphic Communications (8458)

4.8

PERFORMANCE OBJECTIVE

P4.8 Given a temperature-controlled developing sink, a time-temperature chart, a timer, and exposed panchromatic or orthochromatic film, develop film by time-temperature method. Film must be processed according to time-temperature chart instructions and film manufacturer's specifications. All safety precautions must be followed.

SELECTED ENABLING OBJECTIVES

E4.8.1 Distinguish between panchromatic and orthochromatic films.

E4.8.2 Explain how to interpret and use time-temperature chart.

E4.8.3 Outline procedures for developing film, using the time-temperature method.

E4.8.4 Cite the advantages of using the time-temperature method.

E4.8.5 List steps in mixing developer, stop bath, and fixer.

E4.8.6 Describe characteristics of film developed for more or less than the time indicated on the chart.

E4.8.7 Describe how to dry film in dust-free area of the darkroom.

E4.8.8 Identify and follow safety precautions.

CRITERION-REFERENCED MEASURE

C4.8 Film processed according to time-temperature chart instructions and film manufacturer's specifications; all safety precautions followed

SELECTED INSTRUCTIONAL ACTIVITIES

1. Review and have students discuss differences between panchromatic and orthochromatic films (E4.8.1).
2. Display a time-temperature chart and explain how to determine time needed for exposure on the basis of temperature of the developer (E4.8.2).
3. Demonstrate how to mix chemicals for developer and stop bath (E4.8.5).
4. Demonstrate how to develop film, using the time-temperature method; compare time-temperature method with gray scale and sight methods (E4.8.3, E4.8.4).
5. Display samples of under-developed and over-developed film (E4.8.6).
6. Review applicable darkroom safety and maintenance rules (E4.8.8).
7. Supervise student practice in developing film, using the time-temperature method (E4.8.1-E4.8.8).

SELECTED TOOLS AND MATERIALS

Exposed line shot or ortho film
Film dryer
Safelight
Developing sink, temperature-controlled
Time-temperature chart
Developing trays
AB developer (Kodalith developer)
Stop bath
Fixer
Darkroom timer

SELECTED AUDIOVISUAL MATERIALS

Filmstrip/Cassette: Producing a Line Negative. Bergwall Production, Inc.

SELECTED REFERENCES

Curriculum Manual for Graphic Arts, Block VI. Vocational-Technical Division of the New Mexico State Department of Education.
Graphic Communications, 2nd ed., Chapter 10, Richard J. Broekhuizen.

Application

CONTENT/CONCEPT

4. PRODUCING REPRODUCTION PHOTOGRAPHS

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

TASK/COMPETENCY

4.9 Strip or mask negatives

COURSE

Graphic Communication (8458)

4.9

PERFORMANCE OBJECTIVE

P4.9 Given a line negative, masking sheet, and the necessary tools and supplies, strip or mask negatives in the proper position on the masking sheet. Performance must be rated acceptable according to instructor-prepared checklist.

SELECTED ENABLING OBJECTIVES

E4.9.1 Define: flat, goldenrod, negative, utility knife, opaque tape, stripping, and masking.

E4.9.2 Identify how to mark image area on goldenrod.

E4.9.3 Describe method for positioning negative under goldenrod.

E4.9.4 List steps in preliminary positioning and cutting of negative and goldenrod; describe purpose of preliminary triangular cuts in goldenrod.

E4.9.5 List steps in securing negative and cutting goldenrod.

CRITERION-REFERENCED MEASURE

C4.9 Negative stripped in proper position on masking sheet and rated acceptable according to instructor-prepared checklist

SELECTED INSTRUCTIONAL ACTIVITIES

1. Have students define and discuss key terms related to masking of negatives (E4.9.1).

2. Demonstrate how to use lines printed on goldenrod sheets to align negative (E4.9.3).

3. Demonstrate how to cut triangles in goldenrod to hold negative temporarily in place; have students discuss the reasons for this preliminary step (E4.9.4).

4. Demonstrate how to tape negative permanently and cut windows through goldenrod; have students practice the procedure (E4.9.5).

SELECTED TOOLS AND MATERIALS

Instructor-prepared checklist
Drafting/masking tape
Processed negative
T-square
Triangle
Goldenrod paper
Utility knife/blade cutter or razor blade
Opaque tape
Straight edge
Light table

SELECTED AUDIOVISUAL MATERIALS

Filmstrip/Cassette Series: Masking and Opaquing. Bergwall Productions, Inc.
Filmstrip/Cassette: Masking and Platemaking Operations. Bergwall Productions, Inc.

SELECTED REFERENCES

Graphic Communications, 2nd ed., Chapter 9, Unit 32. Richard J. Broekhuizen.

Application

CONTENT/CONCEPT

4. PRODUCING REPRODUCTION PHOTOGRAPHS

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

TASK/COMPETENCY

4.10 Strip halftones

COURSE

Graphic Communications (8458)

4.10

PERFORMANCE OBJECTIVE

P4.10 Given a premasked negative with windows, halftones, and the necessary tools and supplies, strip halftones into their exact position on the negative. Performance must be rated acceptable according to instructor-prepared checklist.

SELECTED ENABLING OBJECTIVES

E4.10.1 Describe how to identify the emulsion side of each halftone.

E4.10.2 List steps in positioning each halftone in the proper window and taping each in its proper position.

E4.10.3 Outline method for proofing each flat, using a diazo or similar process.

CRITERION-REFERENCED MEASURE

C4.10 Halftones stripped into exact position on the negative and rated acceptable according to instructor-prepared checklist

SELECTED INSTRUCTIONAL ACTIVITIES

1. Demonstrate how to identify the emulsion side of a negative; have students discuss why this identification is important (E4.10.1).

2. Demonstrate method for positioning and taping halftones in their proper positions; have students practice this technique (E4.10.2).

3. Demonstrate how to proof flat to check alignment of halftones and line copy; demonstrate diazo process (E4.10.3).

SELECTED TOOLS AND MATERIALS

Utility knife/blade cutter or razor blade
Opaque tape
Light table
Processed halftone
Drafting/masking tape
T-square
Triangle
Instructor-prepared checklist

SELECTED AUDIOVISUAL MATERIALS

Filmstrip/Cassette Series:	Masking and Opaquing. Bergwall Productions, Inc.
Filmstrip/Cassette:	Masking and Platemaking Operations. Bergwall Productions, Inc.
Sound Filmstrip:	Stripping. McKnight Publishing Company.

SELECTED REFERENCES

Graphic Communications, 2nd ed., Chapter 9, Unit 32. Richard J. Broekhuizen.

Application

CONTENT/CONCEPT

4. PRODUCING REPRODUCTION PHOTOGRAPHS

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

TASK/COMPETENCY

4.11 Opaque photostat imperfections

COURSE

Graphic Communications (8458)

4.11

PERFORMANCE OBJECTIVE

P4.11 Given light table, opaquing solution or opaquing felt tip pen, brush, and photostatic film positives or negatives, opaque photostat imperfections on surface of film. Imperfections must be opaqued so that light can not pass through the non-image areas of the negative. Opaque solution must not appear caked and cracked when dry. Printed piece must have no blemishes due to photostatic imperfections.

SELECTED ENABLING OBJECTIVES

E4.11.1 Describe how to apply opaque to pin holes and any other areas that need to be blocked out.

E4.11.2 Identify various methods of opaquing negatives.

E4.11.3 Describe how to correct mistakes in opaquing.

CRITERION-REFERENCED MEASURE

C4.11 Photostat imperfections opaqued so that light can not pass through the non-image areas of the negative; opaque solution does not appear caked and cracked when dry; printed piece with no blemishes due to photostatic imperfections.

SELECTED INSTRUCTIONAL ACTIVITIES

1. Explain the importance of opaquing imperfections in negatives (E4.11.1-E4.11.3).

2. Demonstrate the difference between the various types of opaque and methods of applying opaque (E4.11.1, E4.11.2).

3. Demonstrate how to correct errors in opaquing; have students practice opaquing negative imperfections and correcting any opaquing errors (E4.11.1-E4.11.3).

SELECTED TOOLS AND MATERIALS

Brush
Light table
Opaquing felt tip pen
Photostatic film positives or negatives
Opaquing fluid

SELECTED AUDIOVISUAL MATERIALS

Filmstrip/Cassette Series: Masking and Opaquing. Bergwall Productions, Inc.

SELECTED REFERENCES

None identified

CONTENT/CONCEPT

5. PRODUCING CONTINUOUS TONE PHOTOGRAPHS

TASKS/COMPETENCIES

5.1 Describe the types and parts of cameras

5.2 Calculate exposure settings for various lighting situations

5.3 Identify the types of continuous tone films and the characteristics of each

5.4 Process a roll of black and white film

5.5 Identify the types of photographic positive materials and the use of each

5.6 Produce black and white contract prints and enlargements

Application

CONTENT/CONCEPT

5. PRODUCING CONTINUOUS TONE PHOTOGRAPHS

TASK/COMPETENCY

5.1 Describe the types and parts of cameras

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

COURSE

Graphic Communications (8458)

5.1

PERFORMANCE OBJECTIVE

P.5.1 Given various types of cameras and illustrations of camera parts and functions, describe the types and parts of cameras. Description of each camera and its corresponding parts must be rated 100% correct according to instructor-prepared test.

SELECTED ENABLING OBJECTIVES

E5.1.1 Identify the following types of cameras: 35mm, instamatic, Polaroid, single lens reflex, rangefinder, twin lens reflex, view, and press cameras.

E5.1.2 Identify the following parts of the camera and explain their functions: F-stop, shutter, body, lens, film advance, rewind, and viewfinder.

E5.1.3 Explain the advantages of single lens reflex over rangefinder cameras.

E5.1.4 Outline the differences between shutter-preferred and aperture-preferred cameras.

E5.1.5 Explain what factors should be considered when purchasing a camera.

CRITERION-REFERENCED MEASURE

C5.1 Instructor-prepared test, 100% accuracy

SELECTED INSTRUCTIONAL ACTIVITIES

1. Display the various types of cameras; have students identify each camera and its corresponding parts (E5.1.1, E5.1.2).

2. Have students discuss how the single lens reflex camera operates and why it is preferable to a rangefinder camera (E5.1.3).

3. Describe the different types of shutters available; have students discuss how each type operates (E5.1.4).

4. Conduct a brainstorming session to develop a list of factors to consider when buying a camera; have students select from that list the five most important criteria (E5.1.5).

SELECTED TOOLS AND MATERIALS

35mm single lens reflex camera
Rangefinder camera
Instamatic camera
Twin lens reflex camera
Press/view camera
Polaroid camera
Box camera
Hand-held light meter
Illustrations of camera parts and functions
Instructor-prepared test

SELECTED AUDIOVISUAL MATERIALS

Filmstrip/Cassette: Using the Camera. Greystone Films, Inc.

SELECTED REFERENCES

Exploring Photography. Richard J. Walker and Robert E. Walker.
Graphic Communications, 2nd ed., Unit 11. Richard J. Broekhuizen.
Photo Technology, 3rd ed., Chapter 2. Marshall LaCour and Irvin T. Lathrop.

CONTENT/CONCEPT

5. PRODUCING CONTINUOUS TONE PHOTOGRAPHS

TASK/COMPETENCY

5.2 Calculate exposure settings for various lighting situations

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

COURSE

Graphic Communications (8458)

5.2

PERFORMANCE OBJECTIVE

P5.2 Given a light meter, 35mm single lens reflex camera, and necessary directions, calculate exposure settings for various lighting situations with 100% accuracy according to instructor-prepared checklist.

SELECTED ENABLING OBJECTIVES

E5.2.1 Explain how film is exposed and how F-stops and shutter speeds relate to exposure settings.

E5.2.2 Describe how the light meter is affected by changing its F-stop or shutter speed.

E5.2.3 Explain the relationship between depth of field and F-stop settings.

E5.2.4 Explain how stop action pictures are affected by shutter speed.

CRITERION-REFERENCED MEASURE

C5.2 Calculations for exposure settings, 100% correct according to instructor-prepared checklist

SELECTED INSTRUCTIONAL ACTIVITIES

1. Explain how exposures are made; have students discuss the process from the point when the shutter is released to that when light strikes the film (E5.2.1).
2. Demonstrate, using a 35mm single lens reflex camera, how the F-stops and shutter speeds work; have students practice setting the F-stop and shutter speed; have them note the difference in the light meter readings with the various settings (E5.2.2).
3. Define depth of field and display photographs that illustrate its effects; demonstrate how to control depth of field by adjusting the F-stop; have students practice camera adjustments to control depth of field (E5.2.3).
4. Have students list ways to stop the action on film; have them practice the method of using a fast shutter speed (E5.2.4).

SELECTED TOOLS AND MATERIALS

35mm single lens reflex camera
Hand-held light meter
Instructor-prepared checklist

SELECTED AUDIOVISUAL MATERIALS

Filmstrip/Cassette: Using the Camera. Greystone Films, Inc.

SELECTED REFERENCES

Exploring Photography. Richard J. Walker and Robert E. Walker.
Photo Technology, 3rd ed., Chapter 5. Marshall LaCour and Irvin T. Lathrop.

CONTENT/CONCEPT

5. PRODUCING CONTINUOUS TONE PHOTOGRAPHS

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

TASK/COMPETENCY

5.3 Identify the types of continuous tone films and the characteristics of each

COURSE

Graphic Communications (8458)

5.3

PERFORMANCE OBJECTIVE

P5.3 Given various types of black and white films, identify the types of continuous tone films and the characteristics of each with 90% accuracy on an instructor-prepared written test.

SELECTED ENABLING OBJECTIVES

E5.3.1 Identify the four layers of a piece of film and the function of each.

E5.3.2 Identify the various sizes of film.

E5.3.3 Describe how the ASA of film is determined and how the ASA relates to film's sensitivity to light.

E5.3.4 Explain what "grain" is in film.

E5.3.5 List the differences between black and white and color films.

E5.3.6 Explain what is meant by a "slow" film and a "fast" film.

E5.3.7 Identify factors to consider when purchasing film.

CRITERION-REFERENCED MEASURE

C5.3 Instructor-prepared written test, 90% accuracy

SELECTED INSTRUCTIONAL ACTIVITIES

1. Describe the layers of a piece of film; have students explain the function of each layer (E5.3.1).

2. Have students choose the correct film for a specified photograph. Factors to consider should include the film's ASA, size, and sensitivity to light and the requirements of that particular shot (i.e., fast or slow film, color or black and white film) E5.3.2-E5.3.6).

3. Have students develop a list of factors to consider when purchasing film (E5.3.7).

SELECTED TOOLS AND MATERIALS

Bulk loader
Film cassettes
Black and white films, assorted types and sizes
Instructor-prepared test

SELECTED AUDIOVISUAL MATERIALS

Filmstrip/Cassette: Developing Black and White Films. Greystone Films, Inc.
AV Program: Film: How It Works. Eastman Kodak Company.

SELECTED REFERENCES

Exploring Photography. Richard J. Walker and Robert E. Walker.
Photo Technology, 3rd ed., Chapter 7. Marshall LaCour and Irvin I. Lathrop.

Application

CONTENT/CONCEPT

5. PRODUCING CONTINUOUS TONE PHOTOGRAPHS

TASK/COMPETENCY

5.4 Process a roll of black and white film

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

COURSE

Graphic Communications (8458)

5.4

PERFORMANCE OBJECTIVE

P5.4 Given a roll of black and white film and the necessary equipment and chemicals, process a roll of black and white film. The film should be developed according to manufacturer's specifications, have proper contrast, and should be void of burn marks, developing streaks, water marks, and dust. All safety precautions must be followed.

SELECTED ENABLING OBJECTIVES

E5.4.1 Describe the various types of black and white developers.

E5.4.2 Identify the various types of tanks and reels available and the method for loading film onto the reel and into the tank.

E5.4.3 List the various types of stop baths available and describe the function of stop bath in the developing process.

E5.4.4 Describe the function of fixer and what precautions should be taken when using it.

E5.4.5 Explain the purpose of photo-flo.

E5.4.6 State how to calculate the proper developing time for a given film, according to the type, mix, and temperature of chemicals and the type of film.

CRITERION-REFERENCED MEASURE

C5.4 Film developed according to manufacturer's specifications so that it has proper contrast and is void of burn marks, developing streaks, water marks, and dust; all safety precautions followed

SELECTED INSTRUCTIONAL ACTIVITIES

1. Describe to the class the types of chemicals used in processing black and white film; note all safety precautions that should be followed for each (E5.4.1, E5.4.3-E5.4.5).

2. Have students list the steps in black and white film processing (E5.4.1-E5.4.6).

3. Demonstrate how to calculate time and temperature for development; cite reasons why these calculations are critical (E5.4.6).

4. Describe the advantages and disadvantages of different types of tanks and reels; have students practice loading film, using the various types (E5.4.2).

SELECTED TOOLS AND MATERIALS

Film tank
Film reels
Developer, D76
Stop bath
Fixer
Thermometer
Changing bag
Kodak darkroom dataguide
Black and white film, assorted types and sizes
Film clips
Graduates
Funnel

SELECTED AUDIOVISUAL MATERIALS

Filmstrip/Cassette: Developing Black and White Films. Greystone Films, Inc.

SELECTED REFERENCES

Exploring Photography. Richard J. Walker and Robert E. Walker.
Graphic Communications, 2nd ed., Unit 42. Richard J. Broekhuizen.
Photo Technology, 3rd ed., Chapter 8. Marshall LaCour and Irvin T. Lathrop.

Application

CONTENT/CONCEPT

5. PRODUCING CONTINUOUS TONE PHOTOGRAPHS

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

TASK/COMPETENCY

5.5 Identify the types of photographic positive materials and the use of each

COURSE

Graphic Communications (8458)

5.5

PERFORMANCE OBJECTIVE

P.5.5 Given various types of photographic papers, identify the types of photographic positive materials and the use of each with 90% accuracy on an instructor-prepared test.

SELECTED ENABLING OBJECTIVES

E5.5.1 Explain the differences between enlarging (projection) papers and contact printing papers.

E5.5.2 Identify the various grades of papers and describe how each is used.

E5.5.3 Describe how to use polycontrast (multigrade) paper and variable contrast filters.

E5.5.4 Explain the function and advantages of resin-coated paper.

E5.5.5 List the various types of paper finishes that are available.

E5.5.6 Identify examples of cold tones and warm tones in photographic papers.

CRITERION-REFERENCED MEASURE

C5.5 Instructor-prepared test, 90% accuracy

SELECTED INSTRUCTIONAL ACTIVITIES

1. Discuss with students the differences between enlarging and contact printing papers; have students cite examples of proper use of each type (E5.5.1).

2. Have students identify the different grades, weights, coatings, and finshes/textures for photographic papers; have them illustrate these differences by making prints, using the various papers available (E5.5.2-E5.5.5).

3. Explain the differences between cold-toned and warm-toned papers; have students discuss the uses for each (E5.5.6).

SELECTED TOOLS AND MATERIALS

Photographic enlarging papers (graded, multigraded, and resin-coated)
Photographic contact paper
Samples of photographic papers
Instructor-prepared test

SELECTED AUDIOVISUAL MATERIALS

Filmstrip/Cassette: Printing Black and White. Greystone Films, Inc.

SELECTED REFERENCES

Exploring Photography. Richard J. Walker and Robert E. Walker.
Graphic Communications, 2nd ed., Unit 47. Richard J. Broekhuizen.
Photo Technology, 3rd ed., Chapter 9. Marshall LaCour and Irvin T. Lathrop.

CONTENT/CONCEPT

5. PRODUCING CONTINUOUS TONE PHOTOGRAPHS

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

TASK/COMPETENCY

5.6 Produce black and white contact prints and enlargements

COURSE

Graphic Communications (8458)

5.6

PERFORMANCE OBJECTIVE

P5.6 Given assorted photographic papers, darkroom equipment, and other necessary materials, produce black and white contact prints and enlargements. All prints must have good contrast with no processing streaks and must be void of dirt marks and scratches. All safety precautions must be followed.

SELECTED ENABLING OBJECTIVES

E5.6.1 Identify the parts of an enlarger.

E5.6.2 Explain how to make a contact print; identify how to use a contact print.

E5.6.3 Identify the chemicals necessary for print processing, explain the procedure for mixing each chemical.

E5.6.4 List the steps in processing a print.

E5.6.5 Describe how to make a test strip of a negative and how to determine, on the basis of the test strip, the proper exposure time for an enlargement from the same negative.

E5.6.6 Explain the printing techniques of cropping, dodging, and burning-in.

E5.6.7 Describe how the various types of papers should be dried.

CRITERION-REFERENCED MEASURE

C5.6 Black and white contrast prints and enlargements produced with good contrast, no processing streaks, and no dust marks or scratches; all safety precautions followed

SELECTED INSTRUCTIONAL ACTIVITIES

1. Describe each part of a photographic enlarger; have students discuss the function of each part (E5.6.1).
2. Demonstrate the proper method for mixing each type of chemical necessary for print processing; emphasize the safety precautions to be followed (E5.6.2).
3. Demonstrate the printing process; begin with making a test strip and have students discuss the proper exposure time for the final print, using the test strip results (E5.6.4,E5.6.5).
4. Demonstrate how to crop, dodge, and burn in prints effectively; have students practice these techniques (E5.6.6).
5. Have students practice printing contact prints and enlargements from negatives (E5.6.1-E5.6.7).

SELECTED TOOLS AND MATERIALS

Enlarger
Developer, Dektol
Fixer
Developing trays
Photographic contact paper
Photographic enlarging papers (graded, multigraded, and resin-coated)
Print dryer

SELECTED AUDIOVISUAL MATERIALS

Filmstrip/Cassette: Printing Black and White. Greystone Films, Inc.

SELECTED REFERENCES

Exploring Photography. Richard J. Walker and Robert E. Walker.
Graphic Communications, 2nd ed., Units 44-48. Richard J. Broekhuizen.
Photo Technology, 3rd ed., Chapter 10. Marshall LaCour and Irvin T. Lathrop.

CONTENT/CONCEPT

6. PERFORMING SCREEN PROCESS PRINTING

TASKS/COMPETENCIES

6.1 Identify terms and concepts related to screen printing

6.2 Stretch silk on frame

6.3 Prepare paper stencils

6.4 Prepare tusche stencils

6.5 Prepare hand-cut film stencils

6.6 Prepare photographic indirect stencils

6.7 Prepare photographic direct stencils

6.8 Produce screen process prints

6.9 Produce multicolor screen process prints

Application

CONTENT/CONCEPT

6. PERFORMING SCREEN PROCESS PRINTING

TASK/COMPETENCY

6.1 Identify terms and concepts related to screen printing

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

COURSE

Graphic Communications (8458)

6.1

PERFORMANCE OBJECTIVE

P6.1 Given a list of terms and concepts related to screen printing and a selection of screen printing equipment and materials, identify terms and concepts related to screen printing with 90% accuracy on instructor-prepared quiz.

SELECTED ENABLING OBJECTIVES

E6.1.1 Explain how the screen printing process works.
E6.1.2 Describe characteristics and uses of the paper stencil, tusche stencil, hand-cut film, and photographic stencil methods of screen printing.
E6.1.3 List the various uses of screen printing.
E6.1.4 Identify commercial applications of the screen printing process: textiles, plastics, heat transfers, printed circuits, and objects.
E6.1.5 Define terms related to screen printing equipment and procedures: screen process printing, screen frame unit, stencil, hinge-clamp, stock, parallel, square-edged blade, square-edged squeegee with rounded corners, single-sided bevel-edge squeegee, double-sided bevel-edge squeegee, textile printing, rounded-edge squeegee, ceramics, double-sided bevel-edge flat point squeegee, organdy, nylon, cotton, wire mesh, mesh opening, mesh count, 12XX silk, staple method, tite-stretch or cord method, runs, tite-stretch tool, gummed tape, lacquer or shellac, and kraft paper.
E6.1.6 List safety and maintenance procedures.

CRITERION-REFERENCED MEASURE

C6.1 Instructor-prepared quiz, 90% accuracy

SELECTED INSTRUCTIONAL ACTIVITIES

1. Display samples of screen printed products and diagrams or demonstration model of a hand-operated screen printing press (E6.1.1-E6.1.6).
2. Explain operating principles and procedures for a hand-operated screen press (E6.1.1).
3. Display samples of different types of stencils and discuss various printing methods; explain need to select appropriate type squeegee for the job (E6.1.1, E6.1.2).
4. Assign appropriate readings in text and have students define or identify key terms and concepts related to screen printing (E6.1.5).
5. Discuss commercial applications of screen printing and have students list advantages of the process (E6.1.3, E6.1.4).
6. Visit a commercial screen printing shop (E6.1.1-E6.1.6).
7. Demonstrate and discuss safety and maintenance procedures required in use of screen printing equipment (E6.1.6).

SELECTED TOOLS AND MATERIALS

Kraft paper
Sample stencils
Silk and other fabrics
Silk screen printing press
Squeegees
Instructor-prepared quiz

SELECTED AUDIOVISUAL MATERIALS

Transparencies: Screen Printing. DCA Educational Products.
Sound Filmstrip: Screen Process Printing. McKnight Publishing Company.

SELECTED REFERENCES

Curriculum Manual for Graphic Arts, Block X. Vocational-Technical Division of the New Mexico State Department of Education.
Graphic Communications, 2nd ed., Chapter 7. Richard J. Broekhuizen.
Screen Process Printing. Robert Banzhaf.
Silk Screen Printing, 2nd ed. James Eisenburg and Francis J. Kafka.
Student Print Materials for the U.S. Air Force Course System--Graphics Fundamentals, Block VI. Lowry Technical Training Center.
Understanding Graphic Arts, Chapter 10. Kenneth F. Hird.

Application

CONTENT/CONCEPT	PROGRAM
6. PERFORMING SCREEN PROCESS PRINTING	GRAPHIC COMMUNICATIONS (21.0106)
TASK/COMPETENCY	**COURSE**
6.2 Stretch silk on frame	Graphic Communications (8458)

6.2

PERFORMANCE OBJECTIVE

P6.2 Given silk material, screen frame unit, staple gun, staples, cord, and other necessary tools, equipment, or supplies, stretch silk on frame. The stretched silk must be taunt and free of wrinkles, and finished inside edges of the screen frame must be waterproofed.

SELECTED ENABLING OBJECTIVES

E6.2.1 List types of fabrics used in screen printing, including silk, organdy, nylon, cotton, and fine wire mesh.

E6.2.2 Explain how to interpret numbers and symbols used to indicate mesh count and quality of silk.

E6.2.3 Describe how to select appropriate mesh count and quality of silk needed for a designated printing job.

E6.2.4 Demonstrate how to inspect and frame and remove all burrs or rough edges.

E6.2.5 Explain how to cut silk to appropriate size and wash to remove any starch in the fabric.

E6.2.6 Outline the staple method of stretching a screen fabric.

E6.2.7 Describe the tite-stretch (cord) method of stretching a screen fabric.

E6.2.8 Explain the finishing procedures necessary to prevent ink from seeping under the frame during production.

CRITERION-REFERENCED MEASURE

C6.2 Silk stretched on frame so that it is taunt and free of wrinkles; finished inside edges of screen frame waterproofed

SELECTED INSTRUCTIONAL ACTIVITIES

1. Display samples of screen fabrics and explain how to interpret numbers or symbols used to indicate mesh size and quality or strength (E6.2.1, E6.2.2).

2. Explain why fabric must be washed to remove sizing before silk is stretched on frame (E6.2.5).

3. Demonstrate how to stretch silk on printing frame, using the staple and tite-stretch methods of stretching (E6.2.4-E6.2.7).

4. Demonstrate how to finish the stretched frame (E6.2.8).

5. Supervise student practices in stretching silk on the frame (E6.2.1-E6.2.8).

SELECTED TOOLS AND MATERIALS

Cord
Lacquer or shellac
Scissors
Screen frame unit
Silk and other fabrics
Staple gun with staples
Gummed tape
Tite-stretch tool

SELECTED AUDIOVISUAL MATERIALS

Transparencies: Screen Printing. DCA Educational Products.
Sound Filmstrip: Screen Process Printing. McKnight Publishing Company.

SELECTED REFERENCES

Curriculum Manual for Graphic Arts, Block X. Vocational-Technical Division of the New Mexico State Department of Education.
Graphic Communications, 2nd ed., Chapter 7. Richard J. Broekhuizen.
Screen Process Printing. Robert Banzhaf.
Silk Screen Printing, 2nd ed. James Eisenburg and Francis J. Kafka.
Student Print Materials for the U.S. Air Force Course System--Graphics Fundamentals, Block VI. Lowry Technical Training Center.
Understanding Graphic Arts, Chapter 10. Kenneth F. Hird.

Application

CONTENT/CONCEPT

6. PERFORMING SCREEN PROCESS PRINTING

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

TASK/COMPETENCY

6.3 Prepare paper stencils

COURSE

Graphic Communications (8458)

6.3

PERFORMANCE OBJECTIVE

P6.3 Given an original design, kraft paper or light weight bond, stencil frame, guide strips, adhesives, and other necessary supplies, prepare paper stencils. The design must be drawn to actual size in the desired location, and the stencil must be attached to the frame according to instructor-prepared guidelines.

SELECTED ENABLING OBJECTIVES

E6.3.1 State uses, advantages, and limitations of the paper stencil method of screen process printing.

E6.3.2 Define terms related to paper stencil and identify tools and materials required for preparation: original design, reproduction, waterproof paper, stencil paper, stencil knife, stencil, stencil frame, printing base, side kick, registration guides, adhesive, gummed tape, and kraft paper.

E6.3.3 Outline procedure for making hand-cut paper stencils:

a. Select design to avoid open letters
b. Cut stencil paper to fit inside dimension of frame
c. Tape design in fixed position to light table
d. Tape kraft paper over the design
e. Cut out design areas
f. Adhere paper stencil to screen, using glue or rubber cement
g. Tape paper stencil to the outside edge of the frame when glue is dry
h. Tape top four edges and inside of the frame.

CRITERION-REFERENCED MEASURE

C6.3 Paper stencils prepared with design drawn to actual size in desired location; stencil attached to frame according to instructor-prepared guidelines

SELECTED INSTRUCTIONAL ACTIVITIES

1. Assign appropriate reading in text and have students define key terms and concepts related to paper stencils (E6.3.1, E6.3.2).
2. Display tools, equipment, and materials needed to prepare paper stencils (E6.3.2).
3. Explain uses and limitations of paper stencils; have students discuss why letters such as "O," "Q," or "P" should be avoided (E6.3.1).
4. Demonstrate how to prepare a paper stencil (E6.3.3).
5. Supervise student practice in making paper stencils (E6.3.3).
6. Explain how mimeograph stencils may be used as a substitute for kraft paper (E6.3.3).

SELECTED TOOLS AND MATERIALS

Gummed tape
Kraft paper
Mimeograph stencil
Printing base
Stencil frame
Stencil knife
Waterproof paper

Instructor-prepared guidelines

SELECTED AUDIOVISUAL MATERIALS

Transparencies: Screen Printing. DCA Educational Products.
Sound Filmstrip: Screen Process Printing. McKnight Publishing Company.

SELECTED REFERENCES

Curriculum Manual for Graphic Arts, Block X. Vocational-Technical Division of the New Mexico State Department of Education.
Graphic Communications, 2nd ed., Chapter 7, Unit 22. Richard J. Broekhuizen.
Screen Process Printing. Robert Banzhaf.
Silk Screen Printing, 2nd ed. James Eisenburg and Francis J. Kafka.
Student Print Materials for the U.S. Air Force Course System--Graphics Fundamentals, Block VI. Lowry Technical Training Center.
Understanding Graphic Arts, Chapter 10. Kenneth F. Hird.

Application

CONTENT/CONCEPT

6. PERFORMING SCREEN PROCESS PRINTING

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

TASK/COMPETENCY

6.4 Prepare tusche stencils

COURSE

Graphic Communications (8458)

6.4

PERFORMANCE OBJECTIVE

P6.4 Given an original design, printing base, screen frame unit, silk material, liquid tusche, lithographic crayon, transfer type, benzine, lacquer thinner, glue, and other necessary supplies, prepare tusche stencils. Open areas in the shape of the design must allow the passage of ink, and all work must be performed according to instructor-prepared guidelines.

SELECTED ENABLING OBJECTIVES

E6.4.1 State uses, advantages, and limitations of the tusche stencil method of screen printing.

E6.4.2 Define terms related to tusche stencils and identify tools and materials required for preparation: original design, reproduction, printing frame, printing base, side kick, registration guides, printing areas, liquid tusche, lithographic crayon, transfer type, opaquing fluid, benzine, lacquer thinner, open weave, nonprinting areas, and water-soluble glue.

E6.4.3 Outline procedure for making tusche stencils:

a. Prepare original design
b. Assemble printing frame and base and attach the side kick
c. Raise the screen frame and place the original design in the center of the base
d. Position registration guides and secure them to the base
e. Lower screen without disturbing original design position
f. Trace design on the silk
g. Apply or paint in design areas on the silk, using liquid tusche, lithographic crayon, or transfer type
h. Wash out wet tusche with water and dry tusche with benzine or lacquer thinner
i. Allow time for drying and then inspect tusche
j. Apply second coat if needed
k. Coat screen with glue
l. Raise screen frame and prop with side kick
m. Apply first and second coats of glue over surface of silk
n. Wash away the design by rubbing with a cloth and solvent.

E6.4.4 List and follow safety precautions.

E6.4.5 Explain why water-based screen inks cannot be used with tusche stencils.

CRITERION-REFERENCED MEASURE

C6.4 Tusche stencil prepared so that open areas in shape of the design allow passage of ink; all work performed according to instructor-prepared guidelines

SELECTED INSTRUCTIONAL ACTIVITIES

1. Assign appropriate reading in text and have students define key terms and concepts related to tusche stencils (E6.4.1, E6.4.2).

2. Explain principles of tusche stencil printing (E6.4.1-E6.4.5).

3. Display tools, equipment, and materials needed to prepare tusche stencils (E6.4.2).

4. Demonstrate how to prepare tusche stencils (E6.4.3-E6.4.5).

5. Supervise student practice in preparing tusche stencil, using liquid tusche, lithographic crayon, and transfer type (E6.4.3, E6.4.4).

SELECTED TOOLS AND MATERIALS

Printing base
Benzine
Cloth
Screen frame unit
Lacquer thinner
Liquid tusche
Lithographic crayon
Transfer tape
Water-soluble glue
Instructor-prepared guidelines

SELECTED AUDIOVISUAL MATERIALS

Transparencies: Screen Printing. DCA Educational Products.
Sound Filmstrip: Screen Process Printing. McKnight Publishing Company.

SELECTED REFERENCES

Curriculum Manual for Graphic Arts, Block X. Vocational-Technical Division of the New Mexico State Department of Education.
Graphic Communications, 2nd ed., Chapter 7, Unit 22. Richard J. Brockhuizen.
Screen Process Printing. Robert Banzhaf.
Silk Screen Printing, 2nd ed. James Eisenburg and Francis J. Kafka.
Student Print Materials for the U.S. Air Force Course System--Graphics Fundamentals, Block VI. Lowry Technical Training Center.
Understanding Graphic Arts, Chapter 10. Kenneth F. Hird.

Application

CONTENT/CONCEPT

6. PERFORMING SCREEN PROCESS PRINTING

TASK/COMPETENCY

6.5 Prepare hand-cut film stencils

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

COURSE

Graphic Communications (8458)

6.5

PERFORMANCE OBJECTIVE

P6.5 Given an original design, aqua or lacquer film, light table, screen frame unit, and the necessary tools, supplies, and equipment, prepare hand-cut film stencils. The stencil must be adhered correctly and must appear dark, final masking must not interfere with the passage of the ink over the stencil, and all work must be performed according to instructor-prepared guidelines.

SELECTED ENABLING OBJECTIVES

E4.5.1 Define terms related to hand-cut film stencils and identify tools and materials required for preparation: hand-cut film, gelatin, mylar backing, lacquer film, aqua film, water-soluble ink, lacquer-based ink, emulsion, stencil knife, intersecting lines, overcut, adhere, emboss, printing areas, registration guides, base cover, lacquer thinner, adhering liquid, nonprinting areas, liquid blockout, paper mask, lacquer mask, water mask, kraft paper, and gummed tape.

E6.5.2 Distinguish between hand-cut aqua film and hand-cut lacquer film methods of stencil preparation.

E6.5.3 Outline procedure for cutting stencil:
- a. Tape drawing to light table
- b. Cut stencil film 3 inches wider than size of drawing
- c. Place emulsion side up and tape film over center of drawing
- d. Cut image without cutting through backing sheet
- e. Remove film from image areas that are to be printed.

E6.5.4 Explain need to clean screens thoroughly to remove all sizing or traces of ink.

E6.5.5 Outline procedures for adhering an aqua film stencil and a lacquer film stencil:
- a. Moisten pads or cloth with proper adhering liquid
- b. Place stencil emulsion side up on clean newsprint and position frame
- c. Press dampened pads to the stencil, adhering only a small portion of the stencil at a time
- d. Dry adhered stencil
- e. Peel off backing sheet.

E6.5.6 Demonstrate how to block out nonprinting areas of the screen using the paper, lacquer, or water mask method.

CRITERION-REFERENCED MEASURE

C6.5 Hand-cut film stencils prepared so that stencil is adhered correctly and appears dark and final masking does not interfere with passage of ink over stencil; all work performed according to instructor-prepared checklist

SELECTED INSTRUCTIONAL ACTIVITIES

1. Assign appropriate reading in text and have students define terms and concepts related to hand-cut film stencils (E6.5.1).

2. Display sample hand-cut film stencils and preparation supplies and equipment; explain differences between aqua film and lacquer film procedures (E6.5.2)

3. Demonstrate how to cut, adhere, and mask hand-cut film stencils; explain all special precautions (E6.5.3-E5.5.6).

4. Supervise student practice in hand-cutting film stencils (E6.5.1-E6.5.6).

SELECTED TOOLS AND MATERIALS

Aqua film
Base cover
Cotton pads or cloths
Gummed tape
Kraft paper
Lacquer or shellac
Lacquer-based ink
Lacquer thinner
Light table
Screen frame unit
Stencil knife
Water soluble ink
Instructor-prepared guidelines

SELECTED AUDIOVISUAL MATERIALS

Transparencies: Screen Printing. DCA Educational Products.
Sound Filmstrip: Screen Process Printing. McKnight Publishing Company.

SELECTED REFERENCES

Curriculum Manual for Graphic Arts, Block X. Vocational-Technical Division of the New Mexico State Department of Education.
Graphic Communications, 2nd ed., Chapter 7. Richard J. Broekhuizen.
Screen Process Printing. Robert Banzhaf.
Silk Screen Printing, 2nd ed. James Eisenburg and Francis J. Kafka.
Student Print Materials for the U.S. Air Force Course System--Graphics Fundamentals, Block VI. Lowry Technical Training Center
Understanding Graphic Arts, Chapter 10. Kenneth F. Hird.

Application

CONTENT/CONCEPT

6. PERFORMING SCREEN PROCESS PRINTING

TASK/COMPETENCY

6.6 Prepare photographic indirect stencils

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

COURSE

Graphic Communications (8458)

6.6

PERFORMANCE OBJECTIVE

P6.6 Given an original design, poly-blue Ulano film, contact printing frame, screen frame unit, light source, developing supplies, and other necessary tools, equipment, and materials, prepare photographic indirect stencils. The image area must be clear and free of emulsion, all nonprinting areas of the screen must be blocked out, and all work must be performed according to film manufacturer's specifications.

SELECTED ENABLING OBJECTIVES

E6.6.1 Distinguish between direct and indirect photographic stencil preparation methods.

E6.6.2 Define terms related to photographic indirect stencils and identify tools and equipment required for preparation: photographic indirect stencil, screen process printing, positive image, opaquing fluid, nonprinting areas, stencil, autopositive film, original design, India ink, transfer type, continuous tone photography, halftone positive, screen frame, printing base, side kick, registration guides, adhering, base cover, presensitized emulsion, contact-printing frame, emulsion side, carbon arc light source, developer, liquid blockout, paper mask, lacquer mask, water mask, gummed tape, squeegee, water-based ink, and lacquer-based ink.

E6.6.3 Outline procedure for preparing photographic indirect stencils:

a. Mix photosensitive chemical solution according to manufacturer's specifications
b Prepare printing unit and position registration guides with original design in place
c. Cut the stencil film larger than the design area
d. Load the contact printing frame for exposure
e. Expose film, using a carbon arc light source
f. Wash exposed film in running water
g. Place washed film in register over the original artwork design
h. Blot excess water from the stencil
i. Correct film defects, if any.

E6.6.4 Describe how to block out nonprinting areas of the screen, using paper, water, or lacquer masking methods.

E6.6.5 List and follow safety precautions.

CRITERION-REFERENCED MEASURE

C6.6 Photographic indirect stencils prepared so that image area is clear and free of emulsion, all nonprinting areas of the screen blocked out, and all work performed according to film manufacturer's specifications

SELECTED INSTRUCTIONAL ACTIVITIES

1. Assign appropriate reading in text and have students define key terms and concepts related to photographic stencils (E6.6.1, E6.6.2).
2. Display tools, equipment, and materials needed to prepare photographic stencils (E6.6.2).
3. Display samples of photographic stencils and explain differences between direct and indirect methods of photographic stencil preparation (E6.6.1).
4. List and discuss safety precautions necessary when mixing and using photographic chemicals and exposing film (E6.6.3, E6.6.5).
5. Demonstrate how to prepare a photographic stencil, using the indirect method; stress the need to correct all film defects and to eliminate all air pockets when adhering screen to the frame (E6.6.3-E6.6.5).
6. Supervise student practice in preparing photographic stencils (E6.6.3-E6.6.5).

SELECTED TOOLS AND MATERIALS

Brushes
Contact-printing frame
India ink
Light table
Liquid blockout
Newspapers (for cleaning or building up printing surface)
Hydrogen peroxide (Ulano AB developer)
Screen frame unit
Gummed tape
Transfer tape
Poly-blue Ulano film
Plate exposure unit (platemaker)

SELECTED AUDIOVISUAL MATERIALS

Transparencies: Screen Printing. DCA Educational Products.
Sound Filmstrip: Screen Process Printing. McKnight Publishing Company.
Sound Filmstrip: Screen Process Printing: Photographic Techniques. McKnight Publishing Company.

SELECTED REFERENCES

Curriculum Manual for Graphic Arts, Block X. Vocational-Technical Division of the New Mexico State Department of Education.
Graphic Communications, 2nd ed., Chapter 7. Richard J. Broekhuizen.
Screen Process Printing. Robert Banzhaf.
Silk Screen Printing, 2nd ed. James Eisenburg and Francis J. Kafka.
Student Print Materials for the U.S. Air Force Course System--Graphics Fundamentals, Block VI. Lowry Technical Training Center.
Understanding Graphic Arts, Chapter 10. Kenneth F. Hird.

Application

CONTENT/CONCEPT

6. PERFORMING SCREEN PROCESS PRINTING

TASK/COMPETENCY

6.7 Prepare photographic direct stencils

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

COURSE

Graphic Communications (8458)

6.7

PERFORMANCE OBJECTIVE

P6.7 Given an original design, sensitized emulsion, glass or plastic containers and mixing tools, safelight, screen, rubber cement, contact-printing frame, light source, screen frame unit, and other necessary tools, equipment, or supplies, prepare photographic direct stencils. The original design and stencil must be in perfect alignment, all pinholes or other film defects must be corrected, and all work must be performed according to manufacturer's specifications.

SELECTED ENABLING OBJECTIVES

E6.7.1 Distinguish between direct and indirect photographic stencil preparation methods.

E6.7.2 Define terms related to photographic direct stencils and identify tools and equipment required for preparation: photographic direct stencil, screen process printing, positive image, opaquing fluid, non printing areas, transparent, stencil, original design, India ink, transfer tape, continuous tone photograph, halftone positive, emulsion, sensitized, safe lights, squeegee, liquid blockout, cementing method, rubber cement, ratio, contact-printing frame, exposure, photoflood lights, carbon arc light source, test exposure, pinholes, water-based ink, lacquer-based ink, lacquer mask, water mask, gummed tape, screen frame unit, printing base, side kick, and registration guides.

E6.7.3 Outline procedure for preparing photographic direct stencils:

a. Prepare the positive, using desired image generation method
b. Prepare the emulsion and sensitizer according to manufacturer's specifications
c. Coat screen by brushing or spreading on emulsion
d. Prepare a perfect contact between screen and positive, using cement or contact unit method
e. Expose the screen according to manufacturer's recommendations
f. Develop the exposed screen with water according to manufacturer's recommendations for correct water temperature and method of application
g. Blot excess water from the screen
h. Correct pinholes or other film defects, using lacquer or water mask
i. Assemble printing unit
j. Align original design and stencil in perfect registration.

E6.7.4 List and follow safety precautions.

CRITERION-REFERENCED MEASURE

C6.7 Photographic direct stencil prepared so that original design and stencil are in perfect alignment and all pinholes or other film defects corrected; all work performed according to manufacturer's specifications

SELECTED INSTRUCTIONAL ACTIVITIES

1. Assign appropriate reading in text and have students define key terms and concepts related to photographic direct stencils (E6.7.2).
2. Display tools, equipment, and supplies required to prepare stencils (E6.7.2).
3. Display samples of photographic stencils and explain differences between direct and indirect stencils (E6.7.1).
4. Have students discuss safety precautions necessary when mixing and using photographic chemicals and exposing film (E6.7.3, E6.7.4).
5. Demonstrate how to prepare a photographic stencil, using the direct method (E6.7.3).
6. Explain why it is important to opaque all pinholes or other film defects after screen is developed (E6.7.3).
7. Supervise student practice in preparing photographic direct stencils (E6.7.1-E6.7.4).

SELECTED TOOLS AND MATERIALS

Brushes
Contact-printing frame
Darkroom supplies and equipment
Developer
Emulsion
Poly-blue Ulano film
India ink
Liquid blockout
Rubber cement
Screen frame unit
Gummed tape
Transfer tape
Plate exposure unit (platemaker)
Newspaper (for cleaning or building up printing surface
Hydrogen peroxide (Ulano AB developer)

SELECTED AUDIOVISUAL MATERIALS

Transparencies: Screen Printing. DCA Educational Products.
Sound Filmstrip: Screen Process Printing. McKnight Publishing Company.

SELECTED REFERENCES

Curriculum Manual for Graphic Arts, Block X. Vocational-Technical Division of the New Mexico State Department of Education.
Graphic Communications, 2nd ed., Chapter 7. Richard J. Broekhuizen.
Screen Process Printing, 2nd ed. James Eisenburg and Frances J. Kafka.
Student Print Materials for the U.S. Air Force Course System--Graphics Fundamentals, Block VI. Lowry Technical Training Center.
Understanding Graphic Arts, Chapter 10. Kenneth F. Hird.

Application

CONTENT/CONCEPT

6. PERFORMING SCREEN PROCESS PRINTING

TASK/COMPETENCY

6.8 Produce screen process prints

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

COURSE

Graphic Communications (8458)

6.8

PERFORMANCE OBJECTIVE

P6.8 Given a screen stencil, screen frame unit, India ink, solvents, squeegees, and other necessary tools, equipment, and supplies, produce screen process prints. All prints must be sharp and clear, all tools and equipment must be cleaned and stored properly upon completion, and all work must be performed according to instructor-prepared guidelines.

SELECTED ENABLING OBJECTIVES

E6.8.1 Define terms related to screen process printing and identify tools and equipment needed for the process: stencil, liquid blockout, ink spatula, squeegee, registration guides, screen frame unit, side kick, dry rack, multicolor, transparent flap, printing base, solvents, water mask, tusche stencil, aqua film stencil, lacquer film stencil, lacquer thinner, photographic indirect stencil, photographic direct stencil, and lye.

E6.8.2 Outline procedure for producing screen process prints:

a. Select appropriate ink and squeegee for stencil to be used
b. Cover work area with newspapers to protect surface from ink and solvents
c. Arrange tools and materials so that printing and cleanup will be orderly and efficient
d. Set up press and tape sheet of acetate to surface of the base
e. Place a small quantity of ink on the inside of the screen frame
f. Lower screen frame onto the plastic sheet
g. Tilt squeegee at a 30% angle and place behind the ink; apply downward pressure as the squeegee is pulled along entire open area of the stencil (For best results, go over the stencil only once)
h. Raise screen frame and return squeegee to starting point
i. Rest squeegee against end of frame, raise frame, and support with side kick
j. Position paper under printed area of the acetate and remove acetate
k. Tape on registration guides
l. Position sheet of paper against registration guides
m. Lower screen frame and draw squeegee through the screen
n. Remove printed copy and place on a screen printing drying rack, beginning at the bottom shelf
o. Touch up prints as necessary
p. Remove ink and blockout from screen, using appropriate solvent.

CRITERION-REFERENCED MEASURE

C6.8 Screen process prints produced so that all prints are sharp and clear, all tools and equipment are cleaned and stored properly upon completion, and all work is performed according to instructor-prepared guidelines

SELECTED INSTRUCTIONAL ACTIVITIES

1. Have students define key terms and concepts related to screen printing, identify major parts of a hand-operated screen press, and identify required tools, materials, and equipment (E6.8.1).
2. Display different types and sizes of squeegees and explain their uses (E6.8.2).
3. Explain guidelines for selecting appropriate ink (E6.8.2).
4. Demonstrate how to operate a screen process press (E6.8.2).
5. Supervise student practice in operating a screen press; require students to prepare a test copy before making each run (E6.8.2).
6. Demonstrate or explain procedures for removing blockout from different types of screens (E6.8.2).
7. Demonstrate how to touch up weak or defective prints (E6.8.2).

SELECTED TOOLS AND MATERIALS

Acetate
Drying rack
Water-soluable glue
India ink
Ink spatula
Liquid blockout
Shop rags
Silk screen printing press
Solvents
Squeegees
Gummed tape
Touchup brush
Tusche blockout
Newspapers (for cleaning or building up printing surface)
Scratch paper (for sample prints)
Instructor-prepared guidelines

SELECTED AUDIOVISUAL MATERIALS

Transparencies: Screen Printing. DCA Educational Products.
Sound Filmstrip: Screen Process Printing. McKnight Publishing Company.

SELECTED REFERENCES

Curriculum Manual for Graphic Arts, Block X. Vocational-Technical Division of the New Mexico State Department of Education.
Graphic Communications, 2nd ed., Chapter 7. Richard J. Broekhuizen.
Screen Process Printing. Robert Banzhaf.
Silk Screen Printing, 2nd ed., James Eisenburg and Francis J. Kafka.
Student Print Materials for the U.S. Air Force Course System--Graphics Fundamentals, Block VI. Lowry Technical Training Center.
Understanding Graphic Arts, Chapter 10. Kenneth F. Hird.

CONTENT/CONCEPT

6. PERFORMING SCREEN PROCESS PRINTING

TASK/COMPETENCY

6.9 Produce multicolor screen process prints

Application

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

COURSE

Graphic Communications (8458)

6.9

PERFORMANCE OBJECTIVE

P6.9 Given screen stencils, screen frame unit, India ink, solvents, squeegees, and other necessary tools, equipment, and supplies, produce multicolor screen process prints. All work must be performed according to instructor-prepared guidelines.

SELECTED ENABLING OBJECTIVES

E6.9.1 Review terms related to screen printing (Refer to E7.7.1).

E6.9.2 Outline the procedure for producing multicolor screen process prints:
- a. Select tools, equipment, inks, and other materials and set up press
- b. Tape or tack a sheet of transparent plastic to the printing base
- c. Print an impression on the transparent flap
- d. Register stock, which has been printed in the previous color, under the flap
- e. Fold the flap back and lower the screen frame to print the second color of the design
- f. Repeat procedure as necessary
- g. Remove all ink from spatula, squeegee, and screen fabric upon completion
- h. Remove blockout medium from stencil, using appropriate method
- i. Touch up prints as necessary

E6.9.3 Describe the operation of commercial manual or automatic four-color textile printer.

CRITERION-REFERENCED MEASURE

C6.9 Multicolor screen process prints produced with all work performed according to instructor-prepared guidelines

SELECTED INSTRUCTIONAL ACTIVITIES

1. Demonstrate how to produce multicolor prints, using a hand-operated screen printing press (E6.9.1, E6.9.2).

2. Organize a field trip to a commercial print shop to observe operation of a multicolor screen printer (E6.9.3).

3. Supervise student practice in producing multicolor screen prints (E6.9.1, E6.9.2).

SELECTED TOOLS AND MATERIALS

Acetate
Drying rack
Water-soluable glue
India ink
Ink spatula
Liquid blockout
Shop rags
Silk screen printing press
Solvents
Squeegees
Gummed tape
Touchup brush
Tusche blockout
Newspapers (for cleaning or building up printing surface)
Scratch paper (for sample prints)
Instructor-prepared guidelines

SELECTED AUDIOVISUAL MATERIALS

Transparencies: Screen Printing. DCA Educational Products.
Sound Filmstrip: Screen Process Printing. McKnight Publishing Company.

SELECTED REFERENCES

Curriculum Manual for Graphic Arts, Block X. Vocational-Technical Division of of the New Mexico State Department of Education.
Graphic Communications, 2nd ed., Chapter 7. Richard J. Broekhuizen.
Screen Process Printing. Robert Banzhaf.
Silk Screen Printing, 2nd ed. James Eisenburg and Francis J. Kafka.
Student Print Materials for the U.S. Air Force Course System--Graphics Fundamentals, Block VI. Lowry Technical Training Center.
Understanding Graphic Arts, Chapter 10. Kenneth F. Hird.

CONTENT/CONCEPT

7. PRODUCING AND USING OFFSET LITHOGRAPHIC PLATES

TASKS/COMPETENCIES

7.1 Describe the characteristics of metal, plastic, paper, and electrostatic plates

7.2 Check flats for imperfections, blocked images, and impositions

7.3 Expose plates

7.4 Prepare plate surface for press

7.5 Analyze plates for press readiness

7.6 Mount plate on press

7.7 Clean and file plates

Application

CONTENT/CONCEPT

7. PRODUCING AND USING OFFSET LITHOGRAPHIC PLATES

TASK/COMPETENCY

7.1 Describe the characteristics of plastic, paper, and electrostatic plates

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

COURSE

Graphic Communications (8458)

7.1

PERFORMANCE OBJECTIVE

P7.1 Given samples or illustrations of various types of offset lithographic plates and the necessary resources, describe the characteristics of metal, plastic, paper, and electrostatic plates with 90% accuracy on instructor-prepared test.

SELECTED ENABLING OBJECTIVES

E7.1.1 Define the following terms: offset lithographic plate, platemaker, flat, complementary flat, one-up, two-up, registration marks, stepped-down, presensitized, step and repeat, burning, gripper margin, gray scale, process gum, gum arabic, plate tusche, and deletion fluid.

E7.1.2 State the characteristics of different types of offset lithographic plates: direct-image plates, surface plates, presensitized plates, contact-printed plate, photo-direct plates, transfer plate, silver-diffusion transfer plate, thermographic transfer plate, electronic scanning facsimile plate, electrostatic plate, deep-etch plate, relief plate, and multimetal plate.

E7.1.3 Distinguish between clear versus image areas of a plate and state which area attracts water and which attracts ink.

E7.1.4 Describe the basic offset plate and printing process.

E7.1.5 Identify types and models of platemakers and describe basic operating procedures.

CRITERION-REFERENCED MEASURE

C7.1 Instructor-prepared test, 90% accuracy

SELECTED INSTRUCTIONAL ACTIVITIES

1. Define and discuss key terms and concepts related to the platemaking process; display samples or illustrations of various types of plates, describe their characteristics, and explain how each plate is made (E7.1.1-E7.1.5).

2. Review basic offset printing process (E7.1.4).

3. Demonstrate the platemaking process; reinforce the demonstration by showing the filmstrip, Platemaking (E7.1.5).

4. Discuss the advantages and disadvantages of electrostatic, paper, and metal plates (E7.1.1-E7.1.5).

SELECTED TOOLS AND MATERIALS

Plate exposure units (platemakers)
Electrostatic platemaker/processor
Examples of different types of plates
Instructor-prepared test

SELECTED AUDIOVISUAL MATERIALS

Filmstrip/Cassette: Platemaking. Bergwall Productions, Inc.

SELECTED REFERENCES

Curriculum Manual for Graphic Arts, Block VIII. Vocational-Technical Division of the New Mexico State Department of Education.
Graphic Communications, 2nd ed., Chapter 9. Richard J. Broekhuizen.

CONTENT/CONCEPT

7. PRODUCING AND USING OFFSET LITHOGRAPHIC PLATES

TASK/COMPETENCY

7.2 Check flats for imperfections, blocked images, and impositions

Application

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

COURSE

Graphic Communications (8458)

7.2

PERFORMANCE OBJECTIVE

P7.2 Given job order specifications and prepared flats, check flats for imperfections, blocked images, and impositions. The position of the negative must be correct, all blocked images, impositions, and imperfections must be identified, and the flats must otherwise meet the job order specifications.

SELECTED ENABLING OBJECTIVES

E7.2.1 Describe how to recognize flats that are not prepared according to job specifications.

E7.2.2 Identify areas on negatives that are blocked by litho tape, liquid opaque, masking sheet, or other extraneous material.

E7.2.3 Outline steps for checking flats for proper registration on two-color jobs.

E7.2.4 Describe procedures for correcting flat imperfections.

CRITERION-REFERENCED MEASURE

C7.2 Position of the negative correct; all blocked images, impositions, and imperfections identified; and flats checked to ensure that they meet job order specifications

SELECTED INSTRUCTIONAL ACTIVITIES

1. Have students compare flats that have been prepared accurately with flats that have impositions, blocked images, or other imperfections (E7.2.1).

2. Display negatives that are blocked by litho tape, liquid opaque, masking sheet, or other extraneous materials; have students identify these areas of imperfection on negatives (E7.2.2).

3. Demonstrate how to check flats for proper registration on two-color jobs; supervise student practice of this procedure (E7.2.3).

4. Demonstrate how to correct common errors on flats (E7.2.4).

SELECTED TOOLS AND MATERIALS

Sample flats with and without imperfections
Sample job specifications

SELECTED AUDIOVISUAL MATERIALS

Filmstrip/Cassette: Platemaking. Bergwall Productions, Inc.

SELECTED REFERENCES

Comprehensive Graphic Arts. Ervin A. Dennis and John D. Jenkins.
Curriculum Manual for Graphic Arts, Block VIII. Vocational-Technical Division of the New Mexico State Department of Education.
Lithographer 3 and 2, pp. 221-228, NAVEDTRA 10452-C. U.S. Government Printing Office.

Application

CONTENT/CONCEPT

7. PRODUCING AND USING OFFSET LITHOGRAPHIC PLATES

TASK/COMPETENCY

7.3 Expose plates

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

COURSE

Graphic Communications (8458)

7.3

PERFORMANCE OBJECTIVE

P7.3 Given a platemaker, necessary tools and equipment, and plates in the correct size, expose plates according to job order specifications and manufacturer's recommendations.

SELECTED ENABLING OBJECTIVES

E7.3.1 Describe the uses and characteristics of paper, electrostatic, and metal plates.

E7.3.2 Identify the kind of plate to use for a job according to job order specifications.

E7.3.3 Explain how to determine if flat is one-up, two-up, or step and repeat, according to job order specifications.

E7.3.4 Identify masking sheet markings that are used in the platemaking process.

E7.3.5 Describe how to use crop marks for multiple-burn plates.

E7.3.6 Outline flip-top platemaker operating procedure for making each kind of plate: paper, subtractive, and additive.

E7.3.7 Outline steps for determining the correct amount of time required to burn each type of plate.

CRITERION-REFERENCED MEASURE

C7.3 Plates exposed according to job order specifications and manufacturer's recommendations

SELECTED INSTRUCTIONAL ACTIVITIES

1. Display samples and discuss the uses and characteristics of paper, electrostatic, and metal plates (E7.3.1).
2. Demonstrate how to determine the kind of plate to use for a job according to job specifications (E7.3.2).
3. Have students examine job orders to determine if flat is one-up, two-up, or step and repeat (E7.3.3).
4. Display and identify masking sheet markings and discuss markings required in the platemaking process (E7.3.4).
5. Demonstrate how to make and use crop marks for multiple-burn plates (E7.3.5).
6. Demonstrate how to operate the flip-top platemaker to make each kind of plate: paper, subtractive, and additive; supervise student practice in making each kind of plate (E7.3.6).
7. Demonstrate how to determine appropriate amount of time to burn each type of plate; have students practice making these calculations (E7.3.7).

SELECTED TOOLS AND MATERIALS

Sample flats
Plate exposure unit (platemaker) example: flip-top platemaker
Electrostatic platemaker/processor
Sample job specifications
Grease pencil (for crop marks)

SELECTED AUDIOVISUAL MATERIALS

Filmstrip: Platemaking: Negative Working Plates. Singer Career Systems.

SELECTED REFERENCES

Graphic Communications, 2nd ed., Chapter 9. Richard J. Broekhuizen.
Lithographer 3 and 2, pp. 257-258, NAVEDTRA 10452-C. U.S. Government Printing Office.
Masking and Platemaking Operations Explained, Study Guide #305. Bergwall Productions, Inc.

CONTENT/CONCEPT

7. PRODUCING AND USING OFFSET LITHOGRAPHIC PLATES

TASK/COMPETENCY

7.4 Prepare plate surface for press

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

COURSE

Graphic Communications (8458)

7.4

PERFORMANCE OBJECTIVE

P7.4 Given cotton pads, a paper plate, an additive metal plate, a subtractive metal plate, an electrostatic plate, appropriate chemical solutions, a developing table, and an electrostatic plate processor, prepare plate surface for press according to the appropriate job specifications. Each plate must be prepared so that all image areas are cleared and evenly imprinted on the plate.

SELECTED ENABLING OBJECTIVES

E7.4.1 Describe the characteristics and uses of paper, metal, and electrostatic plates.

E7.4.2 Explain the function of each of the chemical solutions used in preparing paper, metal, and electrostatic offset printing plates.

E7.4.3 Describe how to determine the correct side of a plate to be treated for installation.

E7.4.4 Outline the press installation and plate preparation process for each of the following types of plates: paper plates, additive metal plates, subtractive metal plates, and electrostatic plates.

CRITERION-REFERENCED MEASURE

C7.4 Plate surface prepared for press according to appropriate job order specifications and so that all image areas are cleared and evenly imprinted on the plate

SELECTED INSTRUCTIONAL ACTIVITIES

1. Discuss the characteristics and uses of each kind of offset printing plate (E7.4.1).

2. Display and explain function of each chemical solution used in preparing offset plates for press installation (E7.4.2).

3. Demonstrate how to determine the correct side of a plate to be treated for press installation (E7.4.3).

4. Explain and demonstrate how to prepare each of the following offset plates for press installation: paper plate, additive metal place, subtractive metal plate,and electrostatic plate (E7.4.4).

SELECTED TOOLS AND MATERIALS

Electrostatic platemaker/processor
Sample flat
Plates
Sponges
Etch
Process gum
Lacquer

SELECTED AUDIOVISUAL MATERIALS

None identified

SELECTED REFERENCES

Curriculum Manual for Graphic Arts, Block VIII. Vocational-Technical Division of the New Mexico State Department of Education.

Graphic Communications, 2nd ed., Chapter 9. Richard J. Broekhuizen.

Lithographer 3 and 2, pp. 257-261, NAVEDTRA 10452-C. U.S. Government Printing Office.

Masking and Platemaking Operations Explained, Study Guide #305. Bergwall Productions, Inc.

Application

CONTENT/CONCEPT

7. PRODUCING AND USING OFFSET LITHOGRAPHIC PLATES

TASK/COMPETENCY

7.5 Analyze plates for press readiness

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

COURSE

Graphic Communications (8458)

7.5

PERFORMANCE OBJECTIVE

P7.5 Given a selection of exposed, developed plates and job order specifications, analyze plates for press readiness. All plates determined to be press-ready must be evenly developed and evenly exposed, the image must be positioned according to specifications, and surface must be free of cracks, tears, or other imperfections. Plates not meeting these criteria must be rejected.

SELECTED ENABLING OBJECTIVES

E7.5.1 Identify the characteristics of evenly developed plates and poorly developed plates.

E7.5.2 Identify the characteristics of underexposed and overexposed plates.

E7.5.3 Explain how to check plates for correct position of image according to job specifications.

E7.5.4 List possible plate imperfections, such as cracks or tears.

CRITERION-REFERENCED MEASURE

C7.5 Plates analyzed for press readiness with plates determined to be press-ready evenly developed and evenly exposed, image positioned according to specifications, and surface free of cracks, tears, or other imperfections; plates not meeting these criteria rejected

SELECTED INSTRUCTIONAL ACTIVITIES

1. Discuss the characteristics and uses of each kind of offset printing plate (E7.4.1).

2. Display and explain function of each chemical solution used in preparing offset plates for press installation (E7.4.2).

3. Demonstrate how to determine the correct side of a plate to be treated for press installation (E7.4.3).

4. Explain and demonstrate how to prepare each of the following offset plates for press installation: paper plate, additive metal place, subtractive metal plate,and electrostatic plate (E7.4.4).

SELECTED TOOLS AND MATERIALS

Electrostatic platemaker/processor
Sample flat
Plates
Sponges
Etch
Process gum
Lacquer

SELECTED AUDIOVISUAL MATERIALS

None identified

SELECTED REFERENCES

Curriculum Manual for Graphic Arts, Block VIII. Vocational-Technical Division of the New Mexico State Department of Education.

Graphic Communications, 2nd ed., Chapter 9. Richard J. Broekhuizen.

Lithographer 3 and 2, pp. 257-261, NAVEDTRA 10452-C. U.S. Government Printing Office.

Masking and Platemaking Operations Explained, Study Guide #305. Bergwall Productions, Inc.

Application

CONTENT/CONCEPT

7. PRODUCING AND USING OFFSET LITHOGRAPHIC PLATES

TASK/COMPETENCY

7.5 Analyze plates for press readiness

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

COURSE

Graphic Communications (8458)

7.5

PERFORMANCE OBJECTIVE

P7.5 Given a selection of exposed, developed plates and job order specifications, analyze plates for press readiness. All plates determined to be press-ready must be evenly developed and evenly exposed, the image must be positioned according to specifications, and surface must be free of cracks, tears, or other imperfections. Plates not meeting these criteria must be rejected.

SELECTED ENABLING OBJECTIVES

E7.5.1 Identify the characteristics of evenly developed plates and poorly developed plates.

E7.5.2 Identify the characteristics of underexposed and overexposed plates.

E7.5.3 Explain how to check plates for correct position of image according to job specifications.

E7.5.4 List possible plate imperfections, such as cracks or tears.

CRITERION-REFERENCED MEASURE

C7.5 Plates analyzed for press readiness with plates determined to be press-ready evenly developed and evenly exposed, image positioned according to specifications, and surface free of cracks, tears, or other imperfections; plates not meeting these criteria rejected

SELECTED INSTRUCTIONAL ACTIVITIES

1. Provide samples of evenly developed plates and poorly developed plates; discuss characteristics of each and explain probable cause for the poor development (E7.5.1).

2. Provide samples of underexposed and overexposed plates; discuss characteristics of each and explain probable cause for the poor exposure (E7.5.2).

3. Demonstrate how to inspect plates for correct position of image according to job order specifications; have students check sample plates for correct positioning (E7.5.3).

4. List possible plate imperfections, such as cracks or tears, and provide students with a checklist to use in inspection and evaluation of plate quality (E7.5.4).

SELECTED TOOLS AND MATERIALS

Teacher prepared evaluation checklist
Sample job specifications
Samples of press-ready and defective plates

SELECTED AUDIOVISUAL MATERIALS

Filmstrip/Cassette: Lithographic Offset Platemaking. Bergwall Productions, Inc.

SELECTED REFERENCES

Curriculum Manual for Graphic Arts, Block VIII. Vocational-Technical Division of the New Mexico State Department of Education.

Masking and Platemaking Operations Explained, Study Guide #305. Bergwall Productions, Inc.

CONTENT/CONCEPT

7. PRODUCING AND USING OFFSET LITHOGRAPHIC PLATES

TASK/COMPETENCY

7.6 Mount plate on press

Application

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

COURSE

Graphic Communications (8458)

7.6

PERFORMANCE OBJECTIVE

P7.6 Given an offset printing press and prepared plate, mount plate on press. Plate edge must be appropriate for machine used, the lead and trailing edges must be attached securely to the plate cylinder, and the plate must not contact ink from rollers.

SELECTED ENABLING OBJECTIVES

E7.6.1 Describe how to identify the lead end of offset plate.

E7.6.2 Identify the following parts of the head clamp, hand wheel, tail clamp, and wheel cylinder.

E7.6.3 Examine a variety of plate edges and identify distinguishing characteristics of straight, pinbar, and slotted edges; explain why each edge is appropriate for the machine that will be used.

E7.6.4 Outline procedure for installing an offset plate on machine according to manufacturer's specifications.

CRITERION-REFERENCED MEASURE

C7.6 Plate mounted on press with plate edge appropriate for machine used, leading and trailing edges attached securely to the plate cylinder, and plate contacted no ink from rollers

SELECTED INSTRUCTIONAL ACTIVITIES

1. Demonstrate how to identify the lead end of an offset plate (E7.6.1).

2. Identify and explain purpose of the following machine parts: head clamp, hand wheel, tail clamp, and wheel cylinder (E7.6.2).

3. Display the following types of offset plate edges and explain how each edge is appropriate for the machine to be used: straight edge, pinbar edge, and slotted edge (E7.6.3).

4. Demonstrate how to mount a plate on the press; have students practice the procedure (E7.6.4).

SELECTED TOOLS AND MATERIALS

Offset duplicator
Offset plates
(straight, pinbar, and slotted edge)

SELECTED AUDIOVISUAL MATERIALS

Filmstrip/Cassette: "Machine Operation," Basic Offset Presswork: The Multilith 1250N Explained. Bergwall Productions, Inc.

SELECTED REFERENCES

Comprehensive Graphic Arts. Ervin A. Dennis and John D. Jenkins.
Lithographer 3 and 2, pp. 290-291, 322-324, and 345-346, NAVEDTRA 10452-C.
U.S. Government Printing Office.

Application

CONTENT/CONCEPT

7. PRODUCING AND USING OFFSET LITHOGRAPHIC PLATES

TASK/COMPETENCY

7.7 Clean and file plates

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

COURSE

Graphic Communications (8458)

7.7

PERFORMANCE OBJECTIVE

P7.7 Given a filing system, necessary cleaning supplies and equipment, and a used offset plate, clean and file plates. All excess ink must be removed from the plate, gum must be applied to plate according to plate and gum manufacturer's specifications, and the cleaned plate must be filed according to instructor-developed filing procedures.

SELECTED ENABLING OBJECTIVES

E7.7.1 Describe steps necessary for cleaning a plate.

E7.7.2 Explain method of preserving plates for storage.

E7.7.3 Identify types of plates that can be stored after use.

E7.7.4 Name the methods of filing plates: chronological order, alphabetical order, and subject groups.

CRITERION-REFERENCED MEASURE

C7.7 Plates cleaned with all excess ink removed from the plate, gum applied to plate according to plate and gum manufacturer's specifications, and cleaned plate filed according to instructor-developed filing procedures

SELECTED INSTRUCTIONAL ACTIVITIES

1. Demonstrate how to clean a metal plate (E7.7.1).
2. Demonstrate how to apply gum to preserve plates (E7.7.2).
3. Explain the differences in plates and have students discuss why some can be preserved and stored while others cannot (E7.7.3).
4. Provide students with a job order and have them decide if the order requires a reusable or disposable plate (E7.7.3).
5. Discuss different filing systems; have students identify advantages of each (E7.7.4).

SELECTED TOOLS AND MATERIALS

Used offset plate
Blanket wash
Gum arabic
Instructor-developed filing procedures

SELECTED AUDIOVISUAL MATERIALS

Filmstrip/Cassette: "Care and Maintenance," Basic Offset Presswork: The Multilith 1250N Explained. Bergwall Productions, Inc.

SELECTED REFERENCES

Comprehensive Graphic Arts, pp. 291-292. Ervin A. Dennis and John D. Jenkins.
Curriculum Manual for Graphic Arts, Block VIII. Vocational-Technical Division of of the New Mexico State Department of Education.
Lithographer 3 and 2, p. 260, NAVEDTRA 10452-C. U.S. Government Printing Office.

CONTENT/CONCEPT

8. PRINTING MATERIALS, USING VARIOUS METHODS

TASKS/COMPETENCIES

8.1 Identify the main parts and controls of an offset printing press

8.2 Select paper stock

8.3 Ink press

8.4 Measure, mix, and add fountain solution

8.5 Clean blanket

8.6 Adjust feed table and feed controls

8.7 Maintain paper register

8.8 Adjust delivery unit on offset press

8.9 Run solid color job

8.10 Run two-color ink job in register

8.11 Run screen tint copy job to specifications

8.12 Clean plate

8.13 Identify press problems

8.14 Make a rubber stamp or carved linoleum block for hand relief printing

8.15 Prepare a drypoint engraving for gravure printing

Application

CONTENT/CONCEPT

8. PRINTING MATERIALS, USING VARIOUS METHODS

TASK/COMPETENCY

8.1 Identify the main parts and controls of an offset printing press

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

COURSE

Graphic Communications (8458)

8.1

PERFORMANCE OBJECTIVE

P8.1 Given the necessary resources and an illustration or demonstration model of an offset printing press, identify the main parts and controls of an offset printing press with 90% accuracy according to instructor-prepared test.

SELECTED ENABLING OBJECTIVES

E8.1.1 Identify the following types of offset printing presses and their characteristics and uses: sheet-fed presses, web-fed presses, duplicators, and multi-color presses.

E8.1.2 Explain the function of each of the following basic systems of an offset press: feeding, printing (cylinder), dampening, inking, and delivery.

E8.1.3 Describe the design of two-cylinder, three-cylinder, and four-cylinder presses.

E8.1.4 State the function of the following system controls: speed control lever, left and right jogger control knobs, air-blow controls, vacuum control, paper feed control lever, paper platform hand wheel, left and right paper stack side guides, and paper stack back guide.

E8.1.5 State the function of the following cylinder system controls: handwheel, manual plate-to-blanket impression control, and vertical positioning control knob.

E8.1.6 State the function of the following dampening system controls: dampener fountain roller control knob, dampening volume control knob, form roller control lever, and auxiliary dampener form roller control knob.

E8.1.7 State the function of the following inking system controls: ink fountain roller control knob, ink volume control, and ink fountain manual control lever.

E8.1.8 State the function of the following delivery system controls: delivery street stop, delivery lock release, delivery feed control, delivery pile hand wheel, delivery rate lowering control, and automatic copy counter.

E8.1.9 Explain the printing process in terms of basic theory of offset printing.

E8.1.10 List synonyms for offset printing: lithography, photo-lithography, photo-offset lithography, and photo-offset.

CRITERION-REFERENCED MEASURE

C8.1 Instructor-prepared test, 90% accuracy

SELECTED INSTRUCTIONAL ACTIVITIES

1. Present overview on the scope, nature, and applications of the offset printing industry and assign appropriate reading in text (E8.1.1-E8.1.10).

2. Describe construction and design of different types of offset presses; Explain how the basic theory of offset printing is based on the fact that grease and water do not mix (E8.1.1-E8.1.3, E8.1.9).

3. Have students identify and state function of main parts of an offset press; provide students with diagrams of each system and have them identify system controls on the diagrams or a demonstration model, if available (E8.1.4-E8.1.8).

SELECTED TOOLS AND MATERIALS

Offset printing press (A.B. Dick 350 or 360; AM 1250)
Instructor-prepared test

SELECTED AUDIOVISUAL MATERIALS

Filmstrip/Cassette: "Basic Parts and Nomenclature," Basic Offset Presswork: The Multilith 1250N Explained. Bergwall Productions, Inc.
Sound Filmstrip: On the Press. McKnight Publishing Company.

SELECTED REFERENCES

Curriculum Manual for Graphic Arts, Block IX. Vocational-Technical Division of the New Mexico State Department of Education.
Introduction to Photo-Offset Lithography. Kenneth F. Hird.

Application

CONTENT/CONCEPT

8. PRINTING MATERIALS, USING VARIOUS METHODS

TASK/COMPETENCY

8.2 Select paper stock

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

COURSE

Graphic Communications (8458)

8.2

PERFORMANCE OBJECTIVE

P8.2 Given a job specification sheet and a selection of papers, select paper stock according to specifications. Paper must be correct in color, thickness, size, and quantity.

SELECTED ENABLING OBJECTIVES

E8.2.1 Define the following terms: finish, curl, weight, grain, wire side, smooth side, and stock.

E8.2.2 Identify different kinds of paper used for reproduction according to category and finish.

E8.2.3 List the appropriate uses for the basic kinds of paper.

E8.2.4 Identify kind, size, thickness, and quantity of paper required for a job as indicated on a job specification sheet.

CRITERION-REFERENCED MEASURE

C8.2 Paper stock selected according to specifications; paper selected correct in color, thickness, size, and quantity

SELECTED INSTRUCTIONAL ACTIVITIES

1. Assign and discuss textbook reading assignment (E8.2.1-E8.2.4).
2. Define and illustrate grains of paper, curl, and wire and smooth sides of paper (E8.2.1).
3. Have students examine manufacturer's samples to determine the "feel" of different weights, finishes, and kinds of paper stock (E8.2.2).
4. Review appropriate uses of basic kinds of paper (E8.2.3).
5. Demonstrate how to read and interpret a job specification sheet to determine paper to use for the job; display samples of paper (E8.2.4).

SELECTED TOOLS AND MATERIALS

Paper samples (bond, book, offset, text, cover, duplicator, ledger, and sketch)
Sample job specifications

SELECTED AUDIOVISUAL MATERIALS

Transparencies: Paper. DCA Educational Products.
Sound Filmstrip: Paper. McKnight Publishing Company.

SELECTED REFERENCES

Comprehensive Graphic Arts, pp. 484-489. Ervin A. Dennis and John D. Jenkins.
Graphic Communications, 2nd ed., Chapter 6. Richard J. Broekhuizen.

CONTENT/CONCEPT

8. PRINTING MATERIALS, USING VARIOUS METHODS

TASK/COMPETENCY

8.3 Ink press

Application

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

COURSE

Graphic Communications (8458)

8.3

PERFORMANCE OBJECTIVE

P8.3 Given an offset press, ink, and ink knife, ink press according to manufacturer's specifications. Rollers must be coated evenly, ink must not contact the master cylinder, ink must not scum the plate, and each roller should appear to have a finely speckled finish.

SELECTED ENABLING OBJECTIVES

E8.3.1 Identify the correct ink to use for a specified press and job.

E8.3.2 Identify the tools needed and the parts of machine used in inking process.

E8.3.3 Describe how to add ink to ink fountain.

E8.3.4 Explain how to manipulate ink fountain keys to allow ink to flow evenly.

E8.3.5 Show how to inspect rollers for even coat of ink and explain why rollers must be coated evenly.

CRITERION-REFERENCED MEASURE

C8.3 Press inked according to manufacturer's specifications so that rollers are evenly coated, ink does not contact the master cylinder, ink does not scum the plate, and each roller appears to have a finely speckled finish

SELECTED INSTRUCTIONAL ACTIVITIES

1. Display a variety of offset press inks and discuss their characteristics (E8.3.1).
2. Demonstrate or illustrate parts of press used in the inking process (E8.3.2).
3. Demonstrate how to ink a machine properly (E8.3.3-E8.3.5).
4. Supervise students practice in inking a machine (E8.3.1-E8.3.5).

SELECTED TOOLS AND MATERIALS

Ink
Ink knife
Offset press (A.B. Dick 350 or 360; AM 1250)

SELECTED AUDIOVISUAL MATERIALS

Filmstrip/Cassette: "The Basic Press--Inking and Cleaning," The Basic Offset Press Explained. Bergwall Productions, Inc.

SELECTED REFERENCES

The Basic Offset Press Explained, Study Guide #305. Bergwall Productions, Inc.
Curriculum Manual for Graphic Arts, Block IX. Vocational-Technical Division of the New Mexico State Department of Education.
Graphic Communications, 2nd ed., Unit 36. Richard J. Broekhuizen.
Lithographer 3 and 2, pp. 278-288 and 310-314, NAVEDTRA 10452-C. U.S. Government Printing Office.
Manufacturer's Operating Manual
Understanding Graphic Arts, Chapters 6 and 12. Kenneth J. Hird.

Application

CONTENT/CONCEPT

8. PRINTING MATERIALS, USING VARIOUS METHODS

TASK/COMPETENCY

8.4 Measure, mix, and add fountain solution

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

COURSE

Graphic Communications (8458)

8.4

PERFORMANCE OBJECTIVE

P8.4 Given an offset press, fountain soloution, fountain solution bottle, and measuring cylinder, measure, mix, and add fountain solution according to manufacturer's specifications. Ink must not contact the non-image areas, the copy must not be washed out, and solution must be appropriate for the plate to be run.

SELECTED ENABLING OBJECTIVES

E8.4.1 Explain procedure used for mixing fountain solution.

E8.4.2 State the purpose of the fountain solution.

E8.4.3 List the ingredients to be used in fountain solution and the proportions needed of each.

E8.4.4 Identify the appropriate fountain solution to be used for the various kinds of plates to be run.

E8.4.5 Explain how to test pH of solution.

E8.4.6 List and follow safety precautions.

CRITERION-REFERENCED MEASURE

C8.4 Fountain solution measured, mixed, and added according to manufacturer's specifications and so that ink does not contact non-image areas, copy is not washed out, and solution is appropriate for plate to be run

SELECTED INSTRUCTIONAL ACTIVITIES

1. Have students view a filmstrip on the methods for adding fountain solution to press (E8.4.1-E8.4.3).

2. Demonstrate how to select and add the appropriate solution for various plates (E8.4.4).

3. Demonstrate how to test pH and adjust solution to the correct pH value (E8.4.5).

4. Supervise student practice in preparing fountain solution and adding it to press (E8.4.1-E8.4.6).

SELECTED TOOLS AND MATERIALS

Fountain solution
Fountain solution bottle
Gum arabic
Mixing solution bottle
Offset press (A.B. Dick 350 or 360; AM 1250)

SELECTED AUDIOVISUAL MATERIALS

Filmstrip: Addition of Fountain Solution to Press. Bergwall Productions, Inc.
Sound Filmstrip: Offset Press Makeready. McKnight Publishing Company.

SELECTED REFERENCES

The Basic Offset Press Explained, Study Guide #305. Bergwall Productions, Inc.
Curriculum Manual for Graphic Arts, Block IX. Vocational-Technical Division of the New Mexico State Department of Education.
Graphic Communications, 2nd ed., Chapter 6. Richard J. Broekhuizen.

Application

CONTENT/CONCEPT

8. PRINTING MATERIALS, USING VARIOUS METHODS

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

TASK/COMPETENCY

8.5 Clean blanket

COURSE

Graphic Communications (8458)

8.5

PERFORMANCE OBJECTIVE

P8.5 Given an offset press, chemical solution, and cloth, clean blanket according to manufacturer's specifications so that it is free of all traces of ink.

SELECTED ENABLING OBJECTIVES

E8.5.1 Differentiate blanket from other cylinders on offset press.

E8.5.2 Identify solution to be used for washing blanket.

E8.5.3 Explain the necessity of cleaning the blanket and identify what would happen if blanket is not cleaned.

E8.5.4 Outline procedure for cleaning blanket.

CRITERION-REFERENCED MEASURE

C8.5 Blanket cleaned according to manufacturer's specifications so that it is free of all traces of ink

SELECTED INSTRUCTIONAL ACTIVITIES

1. Point out the arrangement of master, impression, and blanket cylinders (E8.5.1).

2. Display materials, equipment, and solutions used in cleaning the blanket (E8.5.2).

3. Have students discuss the reasons for cleaning the blanket (E8.5.3).

4. Demonstrate how to clean offset press blanket; have students practice cleaning procedure (E8.5.4).

SELECTED TOOLS AND MATERIALS

Cleaning solution
Cloth
Offset press (A.B. Dick 350 or 360; AM 1250)

SELECTED AUDIOVISUAL MATERIALS

Sound Filmstrip: Offset Press Makeready. McKnight Publishing Company.

SELECTED REFERENCES

The Basic Offset Press Explained, Study Guide #305. Bergwall Productions, Inc.
Graphic Communications, 2nd ed., Chapter 6. Richard J. Broekhuizen.

Application

CONTENT/CONCEPT

8. PRINTING MATERIALS, USING VARIOUS METHODS

TASK/COMPETENCY

8.6 Adjust feed table and feed controls

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

COURSE

Graphic Communications (8458)

8.6

PERFORMANCE OBJECTIVE

P8.6 Given an offset press and a selection of paper in various sizes and weights, adjust feed table and feed controls according to manufacturer's specifications. The paper must move freely through the feed one sheet at a time.

SELECTED ENABLING OBJECTIVES

E8.6.1 Identify basic paper weights and sizes: card, cover, and bond.

E8.6.2 Read manufacturer's specifications and identify all machine controls used for paper feed.

E8.6.3 Describe function of each paper feed and feed table control.

E8.6.4 Identify settings for bond, cover, and card paper weights.

E8.6.5 Explain how to adjust feed table controls to accommodate paper height.

E8.6.6 Outline procedure for adjusting paper feed controls.

E8.6.7 Compare adjustment procedures for different press makes and models.

CRITERION-REFERENCED MEASURE

C8.6 Feed table and feed controls adjusted according to manufacturer's specifications so that paper moves freely through the feed one sheet at a time

SELECTED INSTRUCTIONAL ACTIVITIES

1. Review and display basic paper weights and sizes, including card, cover, and bond stock (E8.6.1).
2. Identify and explain function of all machine controls used for paper feed (E8.6.2 and E8.6.3).
3. Demonstrate how to make paper feed adjustments for bond, card, cover, and other selected stock weights (E8.6.4).
4. Demonstrate how to adjust feed table controls, using a variety of stock heights (E8.6.5).
5. Have students practice all phases of setting up the feed end of press (E8.6.6).
6. Have students view filmstrip on setting up paper feed (E8.6.1-E8.6.7).
7. Describe and demonstrate adjustment procedures for different press makes and models (E8.6.7).

SELECTED TOOLS AND MATERIALS

Offset press (A.B. Dick 350 or 360; AM 1250)
Screwdriver
Paper samples (bond, book, offset, text, cover, duplicator, ledger, and sketch)

SELECTED AUDIOVISUAL MATERIALS

Filmstrip/Cassette: "Achieving Good Quality Printing," Basic Offset Presswork: The Multilith 1250N Explained. Bergwall Productions, Inc.

Filmstrip/Cassette: Operating Adjustments and Problems. Bergwall Productions, Inc.

Filmstrip/Cassette: "Paper Feed--Operation and Set-up," The Basic Offset Press Explained. Bergwall Productions, Inc.

SELECTED REFERENCES

Comprehensive Graphic Arts. Ervin A. Dennis and John D. Jenkins.
Curriculum Manual for Graphic Arts, Block IX. Vocational-Technical Division of the New Mexico State Department of Education
Graphic Communications, 2nd ed., Chapter 6. Richard J. Broekhuizen.

Application

CONTENT/CONCEPT

8. PRINTING MATERIALS, USING VARIOUS METHODS

TASK/COMPETENCY

8.7 Maintain paper register

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

COURSE

Graphic Communications (8458)

8.7

PERFORMANCE OBJECTIVE

P8.7 Given an offset press and at least 50 sheets of paper measuring $8\frac{1}{2}$" x 11", maintain paper register according to manufacturer's specifications. All sheets must feed in same track, one at a time, and with proper buckle.

SELECTED ENABLING OBJECTIVES

E8.7.1 Define register and explain the necessity of proper registry in producing quality print.

E8.7.2 Describe the problems resulting from bad register.

E8.7.3 Identify all machine controls used in adjusting paper register.

E8.7.4 Explain the precise steps involved when paper moves from feed table through the press and into the delivery tray.

E8.7.5 Compare procedures needed to maintain register on different press makes and models.

CRITERION-REFERENCED MEASURE

C8.7 Paper register maintained according to manufacturer's specifications so that all sheets feed in same track, one at a time, and with proper buckle

SELECTED INSTRUCTIONAL ACTIVITIES

1. Discuss need for good registry in producing quality print (E8.7.1).
2. Display print samples that illustrate the effects of a poorly registerd feed (E8.7.2).
3. Demonstrate how to operate register controls (E8.7.3).
4. Have students indicate on a diagram of a press the movement of the paper into the delivery tray (E8.7.4).
5. Explain or demonstrate operating procedures needed to maintain register on different offset press makes and models; have students practice these procedures (E8.7.5).

SELECTED TOOLS AND MATERIALS

Offset press (A.B. Dick 350 or 360; AM 1250)
Paper (8½" x 11")

SELECTED AUDIOVISUAL MATERIALS

Filmstrip/Cassette: "Paper Feed--Operations and Setup," The Basic Offset Press Explained. Bergwall Productions, Inc.

SELECTED REFERENCES

The Basic Offset Press Explained, Study Guide #305. Bergwall Productions, Inc.
Comprehensive Graphic Arts. Ervin A. Dennis and John D. Jenkins.
Curriculum Manual for Graphic Arts, Block IX. Vocational-Technical Division of the New Mexico State Department of Education.
Graphic Communications, 2nd ed., Chapter 6. Richard J. Broekhuizen.

CONTENT/CONCEPT

8. PRINTING MATERIALS, USING VARIOUS METHODS

TASK/COMPETENCY

8.8 Adjust delivery unit on an offset press

Application

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

COURSE

Graphic Communications (8458)

8.8

PERFORMANCE OBJECTIVE

P8.8 Given an offset press, paper stock, and job order specifications, adjust delivery unit on offset press according to manufacturer's specifications. All printed pages must be flat and uncurled, the image area must not be tracked, and the paper must feed into the receiver tray one sheet at a time.

SELECTED ENABLING OBJECTIVES

E8.8.1 Identify all parts of offset press used in loading and feeding paper.

E8.8.2 Explain how to adjust suction and blower for one-sheet feed.

E8.8.3 Describe how to adjust all machine parts for straight, registered feed.

E8.8.4 List steps in adjusting delivery end rollers so that image area is not scummed.

CRITERION-REFERENCED MEASURE

C8.8 Delivery unit adjusted according to manufacturer's specifications and so that all printed pages are flat and uncurled, image area is not tracked, and paper feeds into the receiver tray one sheet at a time

SELECTED INSTRUCTIONAL ACTIVITIES

1. Identify and explain function of all parts of offset press used in loading and feeding paper (E8.8.1).

2. Demonstrate how to adjust suction and blower for one-sheet feed (E8.8.2).

3. Demonstrate how to adjust all machine parts for straight, registered feed (E8.8.3).

4. Demonstrate how to adjust delivery end rollers so that image area is not scummed (E8.8.4).

SELECTED TOOLS AND MATERIALS

Offset press (A.B. Dick 350 or 360; AM 1250)
Paper
Screwdriver

SELECTED AUDIOVISUAL MATERIALS

Filmstrip/Cassette: "Basic Parts and Nomenclature," Basic Offset Presswork: The Multilith 1250N Explained. Bergwall Productions, Inc.

SELECTED REFERENCES

The Basic Offset Press Explained, Study Guide #305. Bergwall Productions, Inc.
Curriculum Manual for Graphic Arts, Block IX. Vocational-Technical Division of the New Mexico State Department of Education.
Graphic Communications, 2nd ed., Richard J. Broekhuizen.
Lithographer 3 and 2, pp. 332 and 351, NAVEDTRA 10452-C. U.S. Government Printing Office.

Application

CONTENT/CONCEPT

8. PRINTING MATERIALS, USING VARIOUS METHODS

TASK/COMPETENCY

8.9 Run solid color job

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

COURSE

Graphic Communications (8458)

8.9

PERFORMANCE OBJECTIVE

P8.9 Given an offset press, paper, and a job order, run a solid color job that conforms to job order specifications and that is acceptable according to industry standards for printed copy. All machine controls must be used or adjusted according to manufacturer's specifications.

SELECTED ENABLING OBJECTIVES

E8.9.1 Explain function of each control on an offset press.

E8.9.2 List the acceptable industry standards for printed copy.

E8.9.3 Explain how to adjust vertical and horizontal placement of copy on printed page.

E8.9.4 Outline procedure for running a solid color job order according to specifications.

E8.9.5 Compare operating controls and procedures for different press makes and models.

E8.9.6 Explain how to operate ink and water controls to adjust and maintain color.

E8.9.7 List and follow safety precautions.

CRITERION-REFERENCED MEASURE

C8.9 Solid color job run that conforms to job order specifications and is acceptable according to industry standards for printed copy; machine controls used or adjusted according to manufacturer's specifications

SELECTED INSTRUCTIONAL ACTIVITIES

1. Identify and explain function of each control on a designated offset press; point out differences in various press makes and models (E8.9.1, E8.9.5).

2. Have students discuss acceptable industry standards for printed copy; display samples that do and do not conform to standards, including samples of sharp, gray, blurred, and inked background copy (E8.9.2).

3. Demonstrate how to make adjustment for vertical and horizontal placement of copy on printed page (E8.9.3).

4. Demonstrate step-by-step procedure for running a solid color job order according to specifications; have students practice procedure (E8.9.4).

5. Demonstrate how to correct faulty ink and water flow conditions (E8.9.6).

SELECTED TOOLS AND MATERIALS

Cotton pads
Fountain solution
Ink knife
Job order for color run
Metal plate
Ink
Offset press (A.B. Dick 350 or 360; AM 1250)
Printed copy that does not conform to high industry standards
Shop rags
Job stock
List of acceptable industry standards for printed copy

SELECTED AUDIOVISUAL MATERIALS

Filmstrip/Cassette: "The Printing Operation," The Basic Offset Press Explained. Bergwall Productions, Inc.

SELECTED REFERENCES

Comprehensive Graphic Arts. Ervin A. Dennis and John D. Jenkins. Lithographer 3 and 2, pp. 310-314 and 340-342, NAVEDTRA 10452-C. U.S. Government Printing Office.

Application

CONTENT/CONCEPT

8. PRINTING MATERIALS, USING VARIOUS METHODS

TASK/COMPETENCY

8.10 Run two-color ink job in register

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

COURSE

Graphic Communications (8458)

8.10

PERFORMANCE OBJECTIVE

P8.10 Given an offset press, an operator's manual, paper, a two-color ink job, and the necessary supplies, run a two-color ink job in register. All machine controls must be used or adjusted according to manufacturer's specifications, and the completed job must conform to job order specifications and acceptable industry standards for printed copy.

SELECTED ENABLING OBJECTIVES

E8.10.1 Define these terms and concepts related to color printing: monochromatic, color separation, mechanical separation, photographic separation, hairline registration, commercial registration, masking, key line, butt, overprinting, tints, dot patterns, reflection copy, transmission copy, additive primary colors, cyan printer, magenta printer, yellow printer, subtractive primary colors, black printer, trap, undercolor removal, color correction, dot etching, fine etching, re-etching, positive masking, electronic scanning, moire, and fountain split.

E8.10.2 Demonstrate how to use an ink matching chart.

E8.10.3 List steps in setting up press with primary color ink.

E8.10.4 List steps in setting up press with secondary color ink.

E8.10.5 Describe how to install plate and make the secondary color press run in perfect registration with the primary color.

E8.10.6 Outline procedure for operating a multicolor press.

E8.10.7 Explain how to adjust and maintain color.

CRITERION-REFERENCED MEASURE

C8.10 Two-color ink job run in register with all machine controls used or adjusted according to manufacturer's specifications, and job order completed according to job order specifications and acceptable industry standards for printed copy

SELECTED INSTRUCTIONAL ACTIVITIES

1. Provide students with vocabulary list and assign appropriate reading in text (E8.10.1).
2. Present overview of color printing theory and printing processes, with topics to include color separations, registration, overprinting, use of screens, theory of three-color vision as applied to printing, additive and subtractive primaries, use of black printer, color halftone copy characteristics, moire, and color reproductive capabilities of different types of presses (E8.10.1-E8.10.7).
3. Demonstrate how to use ink matching charts to select appropriate colors of ink (E8.10.2).
4. Demonstrate how to run a two-color ink job in register (E8.10.3-E8.10.5).
5. Explain or demonstrate differences in operating procedures for different press types and makes (E8.10.6).
6. Demonstrate how to adjust and maintain color (E8.10.7).

SELECTED TOOLS AND MATERIALS

Offset press (A.B. Dick 350 or 360; AM 1250)
Fountain solution
Ink
Ink knife
Metal plates
Cotton pads
Shop rags
Magnifying glass
Blanket wash
Ink-matching charts
Job stock

SELECTED AUDIOVISUAL MATERIALS

Filmstrip/Cassette: Four-Color Process Mechanical. Bergwall Productions, Inc.

SELECTED REFERENCES

A Curriculum Guide for Production-Oriented Photo-Offset, Tasks #86 and 87. Illinois State Office of Education.
Curriculum Manual for Graphic Arts, Block IX. Vocational-Technical Division of the New Mexico State Department of Education.
Graphic Communications, 2nd ed., Chapter 9. Richard J. Broekhuizen.
Understanding Graphic Arts, Chapter 13. Kenneth F. Hird.

Application

CONTENT/CONCEPT

8. PRINTING MATERIALS, USING VARIOUS METHODS

TASK/COMPETENCY

8.11 Run screen tint copy job to specifications

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

COURSE

Graphic Communications (8458)

8.11

PERFORMANCE OBJECTIVE

P8.11 Given an offset press, an operator's manual, paper, and the necessary supplies, run a screen tint copy job which conforms to job order specifications and acceptable industry standards for printed copy.

SELECTED ENABLING OBJECTIVES

E8.11.1 Describe the uses and effects of screen tints.

E8.11.2 Explain how to select appropriate screen tint according to job specifications.

E8.11.3 Outline the steps in setting up the press for a screen tint run.

CRITERION-REFERENCED MEASURE

C8.11 Screen tint copy job run so that it conforms to job order specifications and acceptable industry standards for printed copy

SELECTED INSTRUCTIONAL ACTIVITIES

1. Display samples of products printed with use of screen tints; explain how varying values of screen tint can create monochromatic harmony, variety, and contrast (E8.11.1).

2. Explain organization and use of screen tint chart; have students select appropriate tint value according to job specifications (E8.11.2).

3. Demonstrate how to run a screen tint job to specifications; have students practice procedure (E8.11.3).

SELECTED TOOLS AND MATERIALS

Cotton pads
Fountain solution
Ink knife
Job order for screen tint run
Job stock
Metal plate
Ink
Offset press (A.B. 350 or 360; AM 1250)
Samples of printed screen
Screen tint chart
Shop rags

SELECTED AUDIOVISUAL MATERIALS

Filmstrip/Cassette: Special Effects and Materials. Bergwall Productions, Inc.

SELECTED REFERENCES

Graphic Communications, 2nd ed., pp. 29-30. Richard J. Broekhuizen.

CONTENT/CONCEPT

8. PRINTING MATERIALS, USING VARIOUS METHODS

TASK/COMPETENCY

8.12 Clean plate

Application

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

COURSE

Graphic Communications (8458)

8.12

PERFORMANCE OBJECTIVE

P8.12 Given an offset press, an operator's manual, and the necessary cleaning supplies, clean plate of all dust particles, ink, or other foreign objects. All machine controls used to clean plate surface must be used according to manufacturer's specifications, and printed test copy must be free of smudges or extraneous marks, dots, or lines.

SELECTED ENABLING OBJECTIVES

E8.12.1 List steps in adjusting water level and ink flow.

E8.12.2 Identify required proportions for fountain solutions and water mixtures.

E8.12.3 Explain how to check a plate for plate readiness.

E8.12.4 Describe how to dampen the plate.

E8.12.5 Explain how to use a test copy to determine necessary plate cleaning adjustments.

CRITERION-REFERENCED MEASURE

C8.12 Offset press plate cleaned of all dust particles, ink, or other foreign objects, machine controls used according to manufacturer's specifications, and printed test copy free of smudges or extraneous marks, dots, or lines

SELECTED INSTRUCTIONAL ACTIVITIES

1. Demonstrate how to adjust water level and ink flow (E8.12.1).
2. Demonstrate how to determine required proportions for fountain solutions and water mixtures (E8.12.2).
3. Demonstrate how to analyze a plate for plate readiness (E8.12.3).
4. Demonstrate how to dampen a plate; have students practice procedures (E8.12.4).
5. Demonstrate how to use a test copy to determine necessary plate cleaning adjustment (E8.12.5).

SELECTED TOOLS AND MATERIALS

Offset press (A.B. Dick 350 or 360; AM 1250)
Blanket wash
Gum arabic

SELECTED AUDIOVISUAL MATERIALS

None identified

SELECTED REFERENCES

Lithographer 3 and 2, pp. 310-313, NAVEDTRA 10452-C. U.S. Government Printing Office.

Application

CONTENT/CONCEPT

8. PRINTING MATERIALS, USING VARIOUS METHODS

TASK/COMPETENCY

8.13 Identify press problems

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

COURSE

Graphic Communications (8458)

8.13

PERFORMANCE OBJECTIVE

P8.13 Given samples of printed pages with various problems and a troubleshooting guide, identify press problems revealed in each sample. All problems must be identified as well as the probable causes and remedy for each with 90% accuracy on an instructor-prepared written test.

SELECTED ENABLING OBJECTIVES

E8.13.1 Describe the press operator's responsibilities of recognizing and correcting or reporting common press problems.

E8.13.2 Identify the following problems: filling up, gray copy, edge shadow, set-off, creeping, and picking (hickies).

E8.13.3 State probable causes and remedies for each type of printing problem.

CRITERION-REFERENCED MEASURE

C8.13 Instructor-prepared written test, 90% accuracy

SELECTED INSTRUCTIONAL ACTIVITIES

1. Explain press operator's responsibility of identifying and remedying press problems (E8.13.1).

2. Provide students with a list of common printing problems; display samples and have students identify problems in the samples (E8.13.2).

3. Provide students with a troubleshooting guide on the probable causes and remedies for each type of common press problem (E8.13.3).

4. Supervise student practice in identifying press problems and determining probable causes and remedies (E8.13.3).

SELECTED TOOLS AND MATERIALS

Offset press (A.B. Dick 350 or 360; AM 1250)
Printed copy that does not conform to high industry standards
Instructor-prepared test

SELECTED AUDIOVISUAL MATERIALS

Filmstrip/Cassette: "Achieving Good Quality Printing," Basic Offset Presswork: The Multilith 1250N Explained. Bergwall Productions, Inc.

SELECTED REFERENCES

Curriculum Manual for Graphic Arts, Block IX. Vocational-Technical Division of the New Mexico State Department of Education.

CONTENT/CONCEPT

8. PRINTING MATERIALS, USING VARIOUS METHODS

TASK/COMPETENCY

8.14 Make a rubber stamp or carved linoleum block for hand relief printing

Application

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

COURSE

Graphic Communications (8458)

8.14

PERFORMANCE OBJECTIVE

P8.14 Given inks, small typeform, matrix material, paper, rubber stamp press, rubber stamp mounting handle, soapstone, and vulcanizing tray or linoleum block, carving tools, and other necessary equipment and supplies, make a rubber stamp or carved linoleum block for hand relief printing. Images must be sharp and clear, and all work must be performed according to instructor-prepared guidelines.

SELECTED ENABLING OBJECTIVES

E8.14.1 Explain basic principles of relief or letterpress printing.
E8.14.2 State artistic uses of hand-cut linoleum blocks.
E8.14.3 Outline procedure for carving a linoleum block; explain why printing areas must be removed.
E8.14.4 State function of the following tools and equipment used in the lockup operation: chase, quoins, quoin key, planing block, imposing table, furniture, and reglets.
E8.14.5 Describe chaser and furniture-within-furniture methods of lockup.
E8.14.6 Explain why metal furniture must be used for a rubber stamp lockup.
E8.14.7 Explain how to prepare a matrix (or mold) of a locked-up rubber stamp image.
E8.14.8 Explain how to prepare a rubber stamp from a matrix.
E8.14.9 Describe how to use the rubber stamp by pressing against a stamp pad and then on item to be printed.
E8.14.10 Describe how to print with a carved linoleum block.
E8.14.11 Identify traditional commercial uses of letterpress or relief printing.

CRITERION-REFERENCED MEASURE

C8.14 Rubber stamp or carved linoleum block made so that images produced are sharp and clear and work performed meets instructor-prepared guidelines

SELECTED INSTRUCTIONAL ACTIVITIES

1. Give an overview on the principles, history, and applications of relief printing processes (E8.14.1, E8.14.2, E8.14.11).

2. Display linoleum block or rubber stamp projects to illustrate the concept of reverse image printings (E8.14.1-E8.14.11).

3. Display tools and equipment needed to lockup and make a rubber stamp; demonstrate entire rubber stamp-making procedure; supervise student practice in making rubber stamps (E8.14.3-E8.14.8).

4. Supervise student practice in printing with linoleum blocks and rubber stamps (E8.14.9, E8.14.10).

SELECTED TOOLS AND MATERIALS

Carving tools
Linoleum blocks
Matrix material
Paper
Rubber cement
Rubber stamp mounting handle
Rubber stamp press
Small typeform
Soapstone
Stamp rubber
Vulcanizing tray
Instructor-prepared guidelines

SELECTED AUDIOVISUAL MATERIALS

Sound Filmstrip: Relief Printing. McKnight Publishing Company.

SELECTED REFERENCES

Curriculum Manual for Graphic Arts, Block IX. Vocational-Technical Division of the New Mexico State Department of Education.
Graphic Communications, 2nd ed., Chapter 6. Richard J. Broekhuizen.
Understanding Graphic Communications, Chapter 7. Kenneth F. Hird.

Application

CONTENT/CONCEPT

8. PRINTING MATERIALS, USING VARIOUS METHODS

TASK/COMPETENCY

8.15 Prepare a drypoint engraving for gravure printing

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

COURSE

Graphic Communications (8458)

8.15

PERFORMANCE OBJECTIVE

P8.15 Given clear plastic, a stylus cutting tool, a line drawing, carbon paper, tape, and other necessary equipment, tools, and supplies, prepare a drypoint engraving for gravure printing. Design grooves must be cut so that a burr is made on one side of each groove. Work performed must be rated acceptable on instructor-prepared checklist.

SELECTED ENABLING OBJECTIVES

E8.15.1 Define the following key terms and concepts related to gravure printings: gravure, intaglio, doctor blade, rotogravure, engravings, gravure screen etchings, drypoint engraving, burr, carbon tissue, gelatin, gravure cylinder etching, engraving and etching press, and rotary web-fed press.

E8.15.2 Distinguish between engraved and etched plates.

E8.15.3 Describe the construction of a web-fed press and its applications and operating procedures.

E8.15.4 Outline procedure for making a drypoint engraving.

E8.15.5 Explain how to make printed copies on an etching press or similar press.

CRITERION-REFERENCED MEASURE

C8.15 Drypoint engraving prepared with design grooves cut so that burr is made on one side of each groove; work rated acceptable on instructor-prepared checklist

SELECTED INSTRUCTIONAL ACTIVITIES

1. Assign appropriate readings in text and have students define and discuss key terms and concepts related to gravure printings (E8.15.1).

2. Display or illustrate types of etched and engraved plates (E8.15.2).

3. Organize a visit to a commercial printing plant to observe operation of a rotogravure press (E8.15.3).

4. Have students select or prepare a line drawing suitable for transfer to a plastic plate; demonstrate how to transfer drawing and how to use a stylus to cut grooves and form burrs in the engraved lines; supervise student practice of this procedrue (E8.15.4).

5. Have students make printed copies on a small hand-operated etching and engraving press, if available (E8.15.5).

SELECTED TOOLS AND MATERIALS

Carbon paper
Clear plastic (1.4mm thick)
Hand-operated etching and engraving press
Line drawing
Stylus
Drafting/masking tape
Instructor-prepared checklist

SELECTED AUDIOVISUAL MATERIALS

Sound Filmstrip: The Lithographic Process. McKnight Publishing Company.

SELECTED REFERENCES

Curriculum Manual for Graphic Arts, Block X. Vocational-Technical Division of the New Mexico State Department of Education.
Graphic Communications, 2nd ed., Chapter 8. Richard J. Broekhuizen.
Understanding Graphic Communications, Chapter 8. Kenneth F. Hird.

CONTENT/CONCEPT

9. BINDING, FINISHING, AND PACKAGING MATERIALS

TASKS/COMPETENCIES

9.1 Operate padding press to make pads

9.2 Operate paper cutter

9.3 Operate folding machine

Application

CONTENT/CONCEPT

9. BINDING, FINISHING, AND PACKAGING MATERIALS

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

TASK/COMPETENCY

9.1 Operate padding press to make pads

COURSE

Graphic Communications (8458)

9.1

PERFORMANCE OBJECTIVE

P9.1 Given a job order, paper, a padding press, paper jogger, glue, and other necessary supplies, operate padding press to make pads according to teacher-prepared specifications. Finished pads must be securely glued, and bound edges must be even.

SELECTED ENABLING OBJECTIVES

E9.1.1 Identify and define terms related to job orders.

E9.1.2 Demonstrate how to assemble padding press.

E9.1.3 Outline procedures for making pads:
- a. Make necessary padding press adjustment for quantity of paper or papers of unequal sizes
- b. Jog paper
- c. Insert clipboard
- d. Load paper into padding press and clamp into position
- e. Separate pads after glue has dried

E9.1.4 List and follow safety precautions.

CRITERION-REFERENCED MEASURE

C9.1 Padding press operated according to teacher-prepared specifications so that finished pads are securely glued and bound edges are even

SELECTED INSTRUCTIONAL ACTIVITIES

1. Display samples of printed products that have been padded (E9.1.1-E9.1.4).
2. Demonstrate how to read and interpret a job order (E9.1.1).
3. Demonstrate how to assemble, adjust, and operate a padding press (E9.1.3).
4. Have students list and follow required safety precautions (E9.1.4).
5. Supervise student practice in operating padding press (E9.1.1-E9.1.4).

SELECTED TOOLS AND MATERIALS

Binder's knife
Brush (for applying glue)
Clipboard
Padding cement (glue)
Padding press
Press

SELECTED AUDIOVISUAL MATERIALS

Filmstrip: Bindery Operations. Singer Career Systems.
Sound Filmstrip: Finishing. McKnight Publishing Company.
Transparencies: Mechanical Binding Methods. DCA Educational Products.

SELECTED REFERENCES

Comprehensive Graphic Arts, pp. 438-439. Ervin A. Dennis and John D. Jenkins.
Curriculum Manual for Graphic Arts, Block IX. Vocational-Technical Division of the New Mexico State Department of Education.
Graphic Communications, 2nd ed., Chapter 13. Richard J. Broekhuizen.
Photo-Offset Fundamentals, 4th ed., Chapter 15. John E. Cogoli.

Application

CONTENT/CONCEPT

9. BINDING, FINISHING, AND PACKAGING MATERIALS

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

TASK/COMPETENCY

9.2 Operate paper cutter

COURSE

Graphic Communications (8458)

9.2

PERFORMANCE OBJECTIVE

P9.2 Given job specifications, a power or hand lever cutter, paper that needs to be cut to a smaller size, and a ruler, operate paper cutter according to manufacturer's specifications. Calculations for size and number of sheets needed must be 100% accurate, and the required amount of stock must be cut to specifications within 1/32" tolerance.

SELECTED ENABLING OBJECTIVES

E9.2.1 Define: long dimension, short dimension, regular oblong, and spoilage allowance.

E9.2.2 Explain the mathematics required when cutting paper stock.

E9.2.3 Describe how to determine the best job size from available paper stock.

E9.2.4 Explain how to determine amount of paper needed for a job.

E9.2.5 Identify parts and operating controls of the cutter.

E9.2.6 List types of cutters, including hand lever, electric-powered, and computer-operated cutters; state the uses for each type.

E9.2.7 Explain procedure for operating cutter.

E9.2.8 List safety precautions for use of cutters.

E9.2.9 Outline the steps in preparing a sheet to be cut to a specified size.

E9.2.10 Explain how to cut paper to proper size.

CRITERION-REFERENCED MEASURE

C9.2 Paper cutter operated according to manufacturer's specifications so that calculations for size and number of sheets needed is 100% accurate and the required amount of stock is cut to specifications within 1/32" tolerance

SELECTED INSTRUCTIONAL ACTIVITIES

1. Explain and demonstrate how to divide vertically and diagonally to determine most economical method of cutting paper stock (E9.2.1-E9.2.3).
2. Demonstrate how to determine size and number of sheets needed for different job order specifications; explain need to add spoilage allowance (E9.2.1-E9.2.4).
3. Provide students with practice problems in cutting paper stock; have students draw diagrams to illustrate how various job orders should be cut (E9.2.1-E9.2.3).
4. Demonstrate how to operate power and hand cutters (E9.2.5-E9.2.8).
5. Have students list and follow safety precautions (E9.2.8).
6. Supervise student practice in operating cutters (E9.2.1-E9.2.10).

SELECTED TOOLS AND MATERIALS

Paper cutter
Wood block
Steel rulers, standard and metric
Paper in various sizes
Clipboard

SELECTED AUDIOVISUAL MATERIALS

Sound Filmstrip: Paper and Papercutting Calculations. McKnight Publishing Company.
Filmstrip/Cassette: The Paper Cutter. Bergwall Productions, Inc.

SELECTED REFERENCES

Comprehensive Graphic Arts, pp. 423-428. Ervin A. Dennis and John D. Jenkins.
Curriculum Manual for Graphic Arts, Block IX. Vocational-Technical Division of the New Mexico State Department of Education.
Graphic Communications, 2nd ed., Chapter 13. Richard J. Broekhuizen.
Photo-Offset Fundamentals, 4th ed., Chapter 15. John E. Cogoli.

Application

CONTENT/CONCEPT

9. BINDING, FINISHING, AND PACKAGING MATERIALS

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

TASK/COMPETENCY

9.3 Operate a folding machine

COURSE

Graphic Communications (8458)

9.3

PERFORMANCE OBJECTIVE

P9.3 Given job specifications, a folding machine, paper to be folded, and a ruler, operate folding machine according to manufacturer's specifications. All folds must be straight and of the desired size within 1/32" tolerance of job specifications.

SELECTED ENABLING OBJECTIVES

E9.3.1 Name and describe the following types of folds: single, parallel, letter, accordian, panel or gate, French, and booklet.

E9.3.2 Identify parts and operating controls of the folding machine.

E9.3.3 List uses of the folding machine.

E9.3.4 Describe how to calculate the proper settings for the fold plate stops.

E9.3.5 Outline steps in operating the folding machine:

a. Adjust feeding table
b. Adjust machine speed
c. Make adjustments to guarantee straightness
d. Use micrometer adjustments for accuracy
e. Make additional adjustments for various weights of paper and various sizes of paper.

E9.3.6 List and follow safety precautions.

CRITERION-REFERENCED MEASURE

C9.3 Folding machine operated according to manufacturer's specifications so that all folds are straight and of the desired size within 1/32" tolerance of job specifications

SELECTED INSTRUCTIONAL ACTIVITIES

1. Display sample completed printed products to illustrate different types of folds and folding processes (E9.3.1).
2. Demonstrate and explain uses and operation of the folding machine (E9.3.2, E9.3.3).
3. Have students list and follow safety precautions (E9.3.6).
4. Supervise student practice in operating folding machine (E9.3.2-E9.3.6).

SELECTED TOOLS AND MATERIALS

Folding machine
paper
Steel rulers, standard and metric

SELECTED AUDIOVISUAL MATERIALS

Sound Filmstrip: Finishing. McKnight Publishing Company.
Filmstrip/Cassette: The Folding Machine. Bergwall Productions, Inc.
Filmstrip: Post-Press Operations. Singer Career Systems.

SELECTED REFERENCES

Comprehensive Graphic Arts, p. 432. Ervin A. Dennis and John D. Jenkins.
Curriculum Manual for Graphic Arts, Block IX. Vocational-Technical Division of the New Mexico State Department of Education.
Graphic Communications, 2nd ed., Unit 54. Richard J. Broekhuizen.
Photo-Offset Fundamentals, 4th ed., Chapter 15. John E. Cogoli.

CONTENT/CONCEPT

10. CLEANING AND MAINTAINING EQUIPMENT

TASKS/COMPETENCIES

10.1 Clean and maintain layout and pasteup equipment

10.2 Clean and maintain process camera and darkroom equipment

10.3 Clean and maintain press equipment

10.4 Clean and maintain binding equipment

CONTENT/CONCEPT

10. CLEANING AND MAINTAINING EQUIPMENT

TASK/COMPETENCY

10.1 Clean and maintain layout and pasteup equipment

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

COURSE

Graphic Communications (8458)

10.1

PERFORMANCE OBJECTIVE

P10.1 Given the necessary cleaning supplies and equipment and basic layout and pasteup tools, equipment, and supplies, clean and maintain layout and pasteup equipment with 100% accuracy according to instructor-prepared guidelines and manufacturer's recommendations.

SELECTED ENABLING OBJECTIVES

E10.1.1 Identify basic drafting and layout tools, equipment, and supplies.

E10.1.2 Outline appropriate cleaning, maintenance, and storage procedures for basic drafting and layout tools, equipment, and supplies.

E10.1.3 Identify basic pasteup or stripping tools, equipment, and supplies.

E10.1.4 Outline appropriate cleaning, maintenance, and storage procedures for basic pasteup tools, equipment, and supplies.

E10.1.5 Describe the consequences of poorly maintained tools, supplies, and equipment.

CRITERION-REFERENCED MEASURE

C.10.1 Layout and pasteup equipment cleaned and maintained with 100% accuracy according to instructor-prepared guidelines and manufacturer's recommendations

SELECTED INSTRUCTIONAL ACTIVITIES

1. Have students list basic layout tools, equipment, and supplies; give demonstrations on proper maintenance, cleaning, and storage procedures, as required (E10.1.1, E10.1.2).

2. Have students list basic pasteup and stripping tools, equipment, and supplies; give demonstration on proper maintenance, cleaning, and storage procedures, as required (E10.1.3, E10.1.4).

3. Provide students with a list of shop, studio, or classroom rules for proper care and maintenance of supplies, tools, and equipment (E10.1.1-E10.1.5).

SELECTED TOOLS AND MATERIALS

Basic layout and design supplies and materials
Basic stripping or pasteup equipment and tools
Basic stripping or pasteup supplies and materials
Cleaning supplies and equipment
Instructor-prepared guidelines

SELECTED AUDIOVISUAL MATERIALS

Transparencies: Care and Use of Drawing Tools. DCA Educational Products.
Filmstrip/Cassette: "Equipment and Supplies," Black and White Copy Preparation. Bergwall Productions, Inc.

SELECTED REFERENCES

Shop or Classroom Maintenance Rules and Schedule

Application

CONTENT/CONCEPT

10. CLEANING AND MAINTAINING EQUIPMENT

TASK/COMPETENCY

10.2 Clean and maintain process camera and darkroom equipment

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

COURSE

Graphic Communications (8458)

10.2

PERFORMANCE OBJECTIVE

P10.2 Given cameras, a darkroom, and the necessary supplies and equipment, clean and maintain process camera and darkroom equipment according to instructor-prepared checklist. At the beginning of each day, all camera parts and the darkroom must be checked for cleanliness, and all dust and dirt should be removed from lens, copyboard, and film development area.

SELECTED ENABLING OBJECTIVES

E10.2.1 Identify copyboard, lens, and other camera parts.

E10.2.2 Identify basic darkroom tools, supplies, and equipment; list problems associated with poorly maintained darkroom and camera.

E10.2.3 Outline procedures for cleaning lens and copyboard.

E10.2.4 Develop a daily checklist for camera and darkroom maintenance.

CRITERION-REFERENCED MEASURE

C10.2 Process camera and darkroom equipment cleaned and maintained so that all camera parts and the darkroom are checked for cleanliness daily and all dust and dirt are removed from lens, copyboard, and film development area

SELECTED INSTRUCTIONAL ACTIVITIES

1. Review name and function of camera parts (E10.2.1).
2. Have students discuss consequences of poorly maintained darkroom and camera (E10.2.2).
3. Demonstrate proper procedure for cleaning lens and copyboard, and specify the proper cleaning materials to use (E10.2.3).
4. Have students develop and use a daily checklist for camera and darkroom maintenance (E10.2.4).

SELECTED TOOLS AND MATERIALS

Basic photographic and darkroom equipment
Lens tissue
Mild soap, soft cloth
Process camera
Sponge
Instructor-prepared checklist

SELECTED AUDIOVISUAL MATERIALS

Sound Filmstrip: Fundamentals of Process Photography. McKnight Publishing Company.

SELECTED REFERENCES

Comprehensive Graphic Arts, pp. 157-159. Ervin A. Dennis and John D. Jenkins.
Curriculum Manual for Graphic Arts, Block VI. Vocational-Technical Division of the New Mexico State Department of Education.
Lithographer 3 and 2, pp. 127, 155-157, 167, and 269-270, NAVEDTRA 10452-C. U. S. Government Printing Office.

Application

CONTENT/CONCEPT

10. CLEANING AND MAINTAINING EQUIPMENT

TASK/COMPETENCY

10.3 Clean and maintain press equipment

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

COURSE

Graphic Communications (8458)

10.3

PERFORMANCE OBJECTIVE

P10.3 Given an offset press, blanket wash, shop rags, cotton pads, cleaning solutions and supplies, replacement blanket, dampening covers, and other necessary supplies and equipment, clean and maintain press equipment with 100% accuracy according to manufacturer's specifications and instructor-prepared guidelines.

SELECTED ENABLING OBJECTIVES

E10.3.1 Identify cylinders, rollers, and other offset press parts that require regular maintenance or cleaning.

E10.3.2 Outline procedure for press cleaning:
- a. Attach cleanup matte
- b. Clean press thoroughly
- c. Wash all permanent rollers and cylinders
- d. Clean master and blanket cylinders
- e. Remove, clean, and reassemble rollers
- f. Replace blanket
- g. Replace dampening cover
- h. Lubricate press parts and grease gears.

E10.3.3 Explain the purpose of night latches.

E10.3.4 List and follow safety precautions.

E10.3.5 Outline cleaning and maintenance procedures for other types of available press equipment.

CRITERION-REFERENCED MEASURE

C10.3 Press equipment cleaned and maintained with 100% accuracy according to manufacturer's specifications and instructor-prepared guidelines

SELECTED INSTRUCTIONAL ACTIVITIES

1. Demonstrate procedures for routine care, cleaning, and maintenance of an offset press (E10.3.2).
2. Have students discuss importance of regular cleaning and maintenance (E10.3.1).
3. Demonstrate how to replace blankets and dampening covers (E10.3.2).
4. Demonstrate how to lubricate press (E10.3.2).
5. Outline and demonstrate cleaning and maintenance procedures for other available shop press equipment (E10.3.5).
6. Provide students with a list of safety rules (E10.3.4).
7. Supervise students practice in cleaning and maintaining press equipment (E10.3.1-E10.3.5).

SELECTED TOOLS AND MATERIALS

Blanket wash
Cleanup mattes
Cotton pads
Gear grease
Glaze remover
Ff pumice
New dampening cover
Gum arabic
#20 SAE motor oil
Micrometer
Packing sheets
Press manual
Razor blade
Rubber gloves
Shop rags
Instructor-prepared guidelines

SELECTED AUDIOVISUAL MATERIALS

Filmstrip/Cassette: "The Basic Press--Inking and Cleaning," The Basic Offset Press Explained. Bergwall Productions, Inc.

Filmstrip/Cassette: "Care and Maintenance," Basic Offset Presswork: The Multilith 1250N Explained. Bergwall Productions, Inc.

SELECTED REFERENCES

A Curriculum Guide for Production-Oriented Photo-Offset, Tasks #92-94 and 99-101. Illinois State Office of Education.

Lithographer 3 and 2, pp. 306-308, 336-337, and 353-354, NAVEDTRA 10452-C. U.S. Government Printing Office.

Application

CONTENT/CONCEPT

10. CLEANING AND MAINTAINING EQUIPMENT

PROGRAM

GRAPHIC COMMUNICATIONS (21.0106)

TASK/COMPETENCY

10.4 Clean and maintain binding equipment

COURSE

Graphic Communications (8458)

10.4

PERFORMANCE OBJECTIVE

P10.4 Given the necessary cleaning supplies and binding and finishing tools, supplies, and equipment, clean and maintain binding equipment according to manufacturer's specifications.

SELECTED ENABLING OBJECTIVES

E10.4.1 Identify binding and finishing tools, equipment, and supplies.

E10.4.2 Outline appropriate cleaning, maintenance, and storage procedures for binding supplies, tools, or equipment.

E10.4.3 Explain the consequences of poorly maintained tools, equipment, and supplies.

CRITERION-REFERENCED MEASURE

C10.4 Binding equipment cleaned and maintained according to manufacturer's specifications

SELECTED INSTRUCTIONAL ACTIVITIES

1. Demonstrate appropriate cleaning, maintenance, and storage procedures for binding or finishing supplies, tools, and equipment (E10.4.1, E10.4.2).

2. Have students discuss consequences of poorly maintained tools, equipment, and supplies (E10.4.3).

3. Have students develop and use daily checklist for care and maintenance of bindery tools, equipment, and supplies (E10.4.1-E10.4.3).

SELECTED TOOLS AND MATERIALS

Binding and finishing equipment
Cleaning supplies and materials

SELECTED AUDIOVISUAL MATERIALS

None identified

SELECTED REFERENCES

Manufacturer's Specifications

APPENDICES

APPENDIX A: Information, Resources, and References

APPENDIX B: Selected Audiovisual Materials

APPENDIX C: Tools and Equipment List

APPENDIX A

INFORMATION, RESOURCES, AND REFERENCES

I. Books, Catalogs, and Curriculum Manuals

Annual Program of AIASA Activities, Guide 5. Richmond, Virginia: Industrial Arts Education Service, Virginia Department of Education, 1981.

The Basic Offset Press Explained. Garden City, New York: Bergwall Productions, Inc., 1977.

Banzhaf, Robert. Screen Process Printing. Bloomington, Illinois: McKnight Publishing Company, 1983.

Broekhuizen, Richard J. Graphic Communications. 2nd ed. Bloomington, Illinois: McKnight Publishing Company, 1979.

Broekhuizen, Richard J. Graphic Communications Study Guide. Bloomington, Illinois: McKnight Publishing Company, 1979.

Cogoli, John E. Photo-Offset Fundamentals. 4th ed. Bloomington, Illinois: McKnight Publishing Company, 1980.

Cogoli, John E. Photo-Offset Fundamentals Study Guide. 4th ed. Bloomington, Illinois: McKnight Publishing Company, 1980.

Commercial Art I and Commercial Art II: An Instructional Guide. Rockville, Maryland: Montgomery County Public Schools, 1980.

Competency-Based Curriculum in Communications, General Industrial Arts. Nashville, Tennessee: Tennessee State Department of Education, 1980.

A Curriculum Guide for Production-Oriented Photo-Offset. Springfield, Illinois: Illinois State Office Of Education, 1979.

Curriculum Manual for Graphic Arts. Santa Fe, New Mexico: Vocational- Technical Division of the New Mexico State Department of Education.

Dennis, Ervin A., and Jenkins, John D. Comprehensive Graphic Arts. Indianapolis, Indiana: Bobbs-Merrill Education Publishing Company, 1974.

Eisenburg, James, and Kafka, Francis J. Silk Screen Printing. 2nd ed. Bloomington, Illinois: McKnight Publishing Company, 1957.

Grimes, L. A., Jr. Offset Printer--Coordinator's Guide. Austin, Texas: Instructional Materials Center, The University of Texas at Austin, 1976.

Grimes, L. A., Jr. Offset Printer--Student's Guide. Austin, Texas: Instructional Materials Center, The University of Texas at Austin, 1976.

Groveman, Chris H., and Feirer, John. General Industrial Education. 6th ed. New York: McGraw-Hill Book Company, 1979.

Hird, Kenneth F. Introduction to Photo-Offset Lithography. Cincinnati, Ohio: Southwestern Publishers.

Hird, Kenneth F. Understanding Graphic Arts. Cincinnati, Ohio: Southwestern Publishers, 1982.

LaCour, Marshall, and Lathrop, Irvin T. Photo Technology. 3rd ed. Chicago, Illinois: American Technical Society, 1977.

Lithographer 3 and 2. Washington, D.C.: U.S. Government Printing Office, 1975.

Lowry Technical Training Center. Instructor Print Materials for The U.S. Air Force Course System--Graphic Fundamentals. Washington, D.C.: National Laboratory for the Advancement of Education, Aerospace Education Foundation, 1979.

Lowry Technical Training Center. Student Print Materials for the U.S. Air Force Course System--Graphics Fundamentals. Blocks I-III. Washington, D.C.: National Laboratory for the Advancement of Education, Aerospace Education
Foundation, 1979.

Lowry Technical Training Center. Student Print Materials for the U.S. Air Force Course System--Graphics Fundamentals. Blocks IV-VII. Washington, D.C.: National Laboratory for the Advancement of Education, Aerospace Education Foundation, 1979.

Masking and Platemaking Operations Explained. Study Guide #305. Garden City, New York: Bergwall Productions, Inc.

Maurello, Ralph S. Commercial Art Techniques. New York: Leon Amiel Publishers, 1980.

Mid-America Vocational Curriculum Consortium. Graphic Arts: Book II--Process Camera, Stripping, and Platemaking. Stillwater, Oklahoma: Oklahoma Department of Vocational and Technical Education, 1981.

Miller, Wilbur R; Broekhuizen, Richard J.; Maddox, Marion E.; and Smith, Lavon B. Graphic Arts. Basic Industrial Arts Series. Bloomington, Illinois: McKnight Publishing Company, 1978.

Phototypesetting. Module I, Lessons 1-3 (Teacher Manual and Student Handbook). Canton, Massachusetts: Blue Hills Regional Technical School and Boston University, 1977.

Phototypesetting. Module II, Lessons 6-8 (Teacher Manual and Student Handbook). Canton, Massachusetts: Blue Hills Regional Technical School and Boston University, 1977.

Phototypesetting. Module III, Lessons 8-10 (Teacher Manual and Student Handbook). Canton, Massachusetts: Blue Hills Regional Technical School and Boston University, 1977.

Phototypesetting. Module IV, Lessons 11 and 12 (Teacher Manual and Student Handbook). Canton, Massachusetts: Blue Hills Regional Technical School and Boston University, 1977.

Phototypesetting. Module V, Lessons 13-16 (Teacher Manual and Student Handbook). Canton, Massachusetts: Blue Hills Regional Technical School and Boston University, 1977.

Poehls, Eddie, et al. Graphic Arts (Graphic Communications, Senior High--Level 4). Grand Forks, North Dakota: Department of Industrial Technology, 1981.

Reinfeld, George. Opportunities in Graphic Communications--The Printing Industry. Skokie, Illinois: National Textbook Co., 1971.

Silver, Gerald A. Graphic Layout and Design. New York: Van Nostrom-Reinhold, 1981.

Standards for AIASA Events, Guide 6. Richmond, Virginia: Industrial Arts Education Service, Virginia Department of Education.

Student Association Activities in Industrial Arts Instruction. Richmond, Virginia: Industrial Arts Service, Virginia Department of Education.

Swerdlow, Robert M. Introduction to Graphic Arts. Chicago, Illinois: American Technical Publishers, Inc., 1979.

Upton, Barbara, and Upton, John. Photography. 2nd ed. Boston, Massachusetts: Little, Brown, and Company, 1981.

U.S. Department of Labor, Bureau of Labor Statistics. Occupational Outlook Handbook. 1980-81 ed. Washington, D.C.: U.S. Government Printing Office, 1980.

U.S. Department of Labor, Employment, and Training Administration. Dictionary of Occupational Titles. 4th ed. Washington, D.C.: U.S. Government Printing Office, 1977.

Walker, Richard J., and Walker, Robert E. Exploring Photography. South Holland, Illinois: Goodheart-Wilcox Company, Inc., 1983.

II. Periodicals

American Printer and Lithographer (monthly magazine). Maclean-Hunter Publishing Company, 300 W. Adams Street, Chicago, Illinois 60606.

Graphic Arts Monthly (monthly magazine). Technical Publishing Company, 666 Fifth Avenue, New York, New York 10103.

In-Plant Printer (bi-monthly magazine). Innes Publishing Company.

Printing Impressions (monthly magazine). North American Publishing Company, Philadelphia, Pennsylvania 19108.

APPENDIX B

SELECTED AUDIOVISUAL MATERIALS

1. **Bergwall Productions, Inc.**
839 Stewart Avenue
Garden City, New York 11530

Addition of Fountain Solution to Press (filmstrip)
The Basic Offset Press Explained (filmstrip/cassette series)
"The Basic Offset Press--Inking and Cleaning"
"Paper Feed--Operations and Setup"
"The Printing Operation"
Basic Offset Presswork: The Multilith 1250N Explained (filmstrip/cassette series)
"Achieving Good Quality Printing"
"Basic Parts and Nomenclature"
"Care and Maintenance"
"Machine Operations"
Black and White Copy Preparation (filmstrip/cassette series)
"Equipment and Supplies"
"Starting the Mechanical"
The Folding Machine (filmstrip/cassette)
Four-Color Process Mechanical (filmstrip/cassette)
From Layout to Mechanical (filmstrip/cassette)
Half-Tone Work--Reversals and Dropouts (filmstrip/cassette series)
"Darkroom Problems"
"Darkroom Variations"
How to Set Up Paper Feed (filmstrip)
Introduction to Graphic Arts Safety (filmstrip/cassette series)
Lithographic Offset Platemaking (filmstrip/cassette)
Masking and Opaquing (filmstrip/cassette series)
"The Basic Process: Part I"
"Variations: Part II"
Masking and Platemaking Operations (filmstrip/cassette)
Operating Adjustments and Problems (filmstrip/cassette)
The Paper Cutter (filmstrip/cassette)
Platemaking (filmstrip/cassette)
Printing Shop Safety (filmstrip/cassette series)
Producing a Line Negative (filmstrip/cassette)
Producing Negatives for the Offset Press (filmstrip/cassette)
Special Effects and Materials (filmstrip/cassette)

2. **Career Aids, Inc.**
8950 Lurline Avenue
Department 45
Chatsworth, California 91311

The Offset Shop: Part I (filmstrip/cassette)
The Small Print Shop: Introduction and Copy Handling (filmstrip/cassette)

3. DCA Educational Products
Available from:
Brodhead-Garret Company
2448 Industrial Park Drive
Macon, Georgia 31213

Black and White Photography (transparencies)
Care and Use of Drawing Tools (transparencies)
Design (transparencies)
Enlarging and Reducing With a Process Camera (transparencies)
Historical Highlights (transparencies)
Image Transfer (transparencies)
Mechanical Binding Methods (transparencies)
Metrics on the Drawing Board (transparencies)
Paper (transparencies)
Screen Printing (transparencies)
What is Graphic Arts? (transparencies)

4. Eastman Kodak Company
Available from:
The Center for Humanities, Inc.
Communications Park
P.O. Box 1000
Mount Kisco, New York 10549

Film: How It Works (AV program)

5. Edupac, Inc.
231 Norfolk Street
P.O. Box 72
Walpole, Massachusetts 02081

Career Exploration (filmstrip/cassette series)
"Graphic Services"

6. Greystone Films, Inc.
Box 303, Kingsbridge Station
Riverdale, New York 10463

Developing Black and White Films (filmstrip/cassette)
Printing Black and White (filmstrip/cassette)
Using the Camera (filmstrip/cassette)

7. Hammermill Paper Company
P.O. Box 1440
Erie, Pennsylvania 16533

How is Paper Made? (16 mm film)

8. **Instructional Media Associates, Inc.**
225 W. University Drive
Suite 108
Tempe, Arizona 85281

Darkroom Tools and Techniques (filmstrip)

9. **Learning Arts**
P.O. Box 179
Wichita, Kansas 67201

Exploring Vocations--Printing (Communications and Media) (filmstrip/video-cassette)

10. **Letraset USA, Inc.**
40 Eisenhower Drive
Paramus, New Jersey 07652

The Liberated Letter (filmstrip)

11. **McKnight Publishing Company**
P.O. Box 2854-808
IAA Drive
Bloomington, Illinois 61701

Basic Fundamentals of Photo-Offset Lithography (sound filmstrip)
Developing a Mechanical (sound filmstrip)
Finishing (sound filmstrip)
Fundamentals of Process Photography (sound filmstrip)
Graphic Art Design (sound filmstrip)
Halftone Photography (sound filmstrip)
Introduction to Printing Process (sound filmstrip)
Line Photography--Basic Procedures (sound filmstrip)
The Lithographic Process (sound filmstrip)
Offset Press Makeready (sound filmstrip)
On the Press (sound filmstrip)
Overview of Graphic Communications (sound filmstrip)
Paper (sound filmstrip)
Paper and Papercutting Calculations (sound filmstrip)
The Printer's Photographer (sound filmstrip)
Relief Printing (sound filmstrip)
Screen Process Printing (sound filmstrip)
Screen Process Printing: Photographic Technique (sound filmstrip)
Stripping (sound filmstrip)

12. **National AIASA**
1908 Association Drive
Reston, Virginia 22091

AIASA--A Classroom Experience (slides)

13. **Pathescope Educational Media**
Communications Park
P.O. Box 6000
Mount Kisco, New York 10549

Careers in Graphic Arts (filmstrips, cassettes, and library kit)

14. **Singer Career Systems**
80 Commerce Drive
Rochester, New York 14623

Bindery Operations (filmstrip)
Graphic Arts Tools and Materials (filmstrip)
Halftones and Screens (filmstrip)
Job Planning in Graphic Arts (filmstrip)
Platemaking: Negative Working Plates (filmstrip)
Post-Press Operations (filmstrip)
Preparing a One Copy Mechanical (filmstrip)

15. **Teaching Aids, Inc.**
P.O. Box 1798
Costa Mesa, California 92626-0798

Basic Commercial Art Skills (filmstrip/cassette)
Display Lettering (filmstrip/cassette)
Paper (filmstrip/cassette)
Principles of Graphic Design (filmstrip/cassette)
Typography (transparencies)
Where Everything Printed Begins (filmstrip/cassette)

16. **Virginia Department of Education**
Bureau of Teaching Materials
P.O. Box 6Q
Richmond, Virginia 23216

Art of Communication: How to Conduct a Meeting (#21908) (color film)

17. **Virginia Department of Education**
Industrial Arts Education Service
P.O. Box 6Q
Richmond, Virginia 23216

In-Class AIASA Management (tv/tape)
Move With Tomorrow (slides)

APPENDIX C

TOOLS AND EQUIPMENT LIST

The following tools and equipment have been suggested for instructional planning and facility development. The list includes tools and equipment to aid in teaching the competencies contained in this guide.

1. LAYOUT AND DESIGN EQUIPMENT

Sketch paper
Scissors
Pencils, assorted
Pasted chalk
Fixative
Drawing board
T-square
Triangle
Technical pen
Speedball pen
Crow quill pen
Ruling pen
Layout paper
Blue nonreproducing pen/pencil
Light table
Art board
Rubber cement
Drafting/masking tape
Cellophane tape
Rubber cement eraser
Waxer
Steel rulers, standard and metric
Straight edge
Printer's line gauge
Pica rule
Letraset book
Border tape
Burnisher
Inking powder
Utility knife/blade cutter or razor blade
Tracing paper
Transfer letter sheet with backing
Clip art books
Correction tape
Correction fluid
Typewriter
Stripprinter
Stripprinter fonts
Stripprinter chemicals
Stripprinter photographic paper
Grease pencil
Proportion wheel
Registration marks
Masking film (rubylith or amberlith)
Black paper
Brushes
Opaquing fluid
Opaquing felt tip pen
Opaque tape

2. AIASA SUPPLIES

AIASA banner
AIASA notebook
Officer symbols

3. PHOTOGRAPHIC AND DARKROOM EQUIPMENT

Process camera
35mm single lens reflex camera
Polaroid camera
Box camera
Press/view camera
Rangefinder camera
Instamatic camera

Twin lens reflex camera
Copy or offset camera with vacuum frame
Gray scale
Kodak half tone computer
Densitometer
Halftone screens
Safelight
White illustration board
Hand-held light meter
Bulk loader
Film cassettes
Black and white film, assorted types and sizes
Developing trays
Measuring cup
Storage containers
Developing sink, temperature controlled
Film dryer
Time-temperature chart
Film tanks
Film reels
Developer, D-76 and Dektol
Stop bath
Fixer
Thermometer
Changing bag
Kodak Darkroom Dataguide
Film clips
Graduates
Funnel
Photographic enlarging papers (graded, multigraded, and resin coated)
Photographic contact paper
Enlarger
Print dryer
Safety protection equipment
AB developer (Kodalith developer)
Darkroom timer

4. PRINTING AND PLATEMAKING EQUIPMENT

Plate exposure unit (platemaker)
Plates
Sponges
Chemicals
Electrostatic platemaker/processor
Offset duplicator
Offset plates (straight, pinbar, and slotted edge)
Cleaning solution
Offset printing press (A.B. Dick 350 or 360; AM 1250)
Fountain solution
Fountain solution bottle
Gum arabic
Mixing solution bottle
Ink
Ink knife
Cloth
Screwdriver
Cotton pads
Magnifying glass
Blanket wash
Ink-matching charts
Screen tint chart
Shop rags
Carbon paper
Clear plastic (1.4 mm thick)
Hand-operated etching and engraving press
Stylus
Carving tools
Linoleum blocks
Matrix material
Rubber stamp mounting handle
Rubber stamp press
Small typeform
Soapstone
Stamp rubber
Vulcanizing tray
Goldenrod paper
Etch
Process gum
Laquer

5. SILK SCREENING SUPPLIES

Kraft paper
Silk and other fabrics
Silk screen printing press
Squeegees
Cord
Lacquer or shellac
Screen frame unit
Staple gun with staples
Tite-stretch tool
Gummed tape
Mimeograph stencil
Printing base
Stencil frame
Stencil knife
Waterproof paper
Benzine

Lacquer thinner
Liquid tusche
Lithographic crayon
Water-soluable glue
Aqua film
Base cover
Cotton pads/cloths
Lacquer-based ink
Water-soluable ink
Brushes
Contact-printing frame
India ink
Liquid blockout
Transfer tape
Poly-blue Ulano film
Acetate
Drying rack
Ink spatula
Solvents
Touchup brush
Tusche blockout
Platemaker
Hydrogen peroxide (Ulano AB developer)
Newspapers (for cleaning or building up printing surface)
Scratch paper (for sample prints)

6. FINISHING AND CLEANING EQUIPMENT

Binder's knife
Brush (for applying glue)
Clipboard
Padding press
Padding cement (glue)
Paper cutter
Wood block
Folding machine
Lens tissue
Soap
Soft cloth
Sponge
Cleanup mattes
Cotton pads
Gear grease
Glaze remover
Ff pumice
New dampening cover
#20 SAE motor oil
Micrometer
Packing sheets
Press manual
Rubber gloves

7. SAMPLES AND ILLUSTRATIONS

Paper samples (bond, book, offset, text, cover, duplicator, ledger, and sketch)
Samples of graphic arts products (magazines, advertisements, posters, illustrations, and pamphlets)
Samples of hot and cold image generation
Samples of continuous tone, halftone, and line copy
Samples of binding and finishing processes (embossing, die-cutting, laminating, perforating, slitting, stapling, stitching, comb binding, adhesive binding, and looseleaf binding)
Examples of layouts
Samples of cropped and sized photographs
Illustrations of camera parts and functions
Examples of different types of plates
Samples of flats with and without imperfections
Samples of press-ready and defective plates
Printed copy that does not conform to high industry standards
Samples of printed screen
Samples of color stock
Samples of catalogs for printing supplies
Sample estimation form
Sample job specifications
Sample printing plant or shop organizational chart
Sample schedule of hourly rates for plant personnel
Sample schedule of per page typesetting costs
Samples of assorted inks
Samples of photographic papers

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